THIS WEEK'S National Petroleum NEWS

Index to Coming Meetings

American Society for Testing Materials, Atlantic City, N. J., June 23 to 27.

North American Gasoline Tax Conference, King Edward Hotel, Toronto, Ont., Sept. 2, 3, 4.

American Chemical Society, Hotel Gibson, Cincinnati, O., Sept. 8 to 12.

Ohio Petroleum Marketers Association, Deshler-Wallick Hotel, Columbus, O., Sept. 17.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., Sept. 17, 18, 19.

National Safety Council, Petroleum Section, Pittsburgh, Pa., Sept. 29 to Oct. 4.

Big Four State Jobbers Convention, (Missouri, Iowa, Kansas and Nebraska) Kansas City, Mo., Oct. 14, 15, 16.

Independent Oil Men of America, Marketing Congress and Exhibit, Statler Hotel, St. Louis, Mo., Nov. 2, 3, 4, 5.

American Petroleum Institute, Stevens Hotel, Chicago, Nov. 10 to 13.

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—*Photo by Blank-Stoller, Inc.*

H. S. AUSTIN, an experienced pipeline man, is head of the newly organized Ajax Pipe Line Co. which is to build a twin 10-inch crude line from Oklahoma to Wood River, Ill. Mr. Austin has been president of the Tuscarora Oil Co., another Standard Oil Co. of New Jersey subsidiary.

The Tuscarora line extends from Bayway, N. J., to Midland, Pa., on the Ohio river and now is used for pumping gasoline west. For many years it was used to pump crude east from the Ohio line to the coast.

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Vol. 22 CLEVELAND, June 11 No. 24

Ajax Pipe Line to Assure Crude Supply For Central States Refineries

By R. B. Stafford
N. P. N. STAFF WRITER

By Telegraph
NEW YORK, June 9

THE new Ajax pipeline from Glenn Pool, Okla., to Wood River, Ill., will be built to safeguard the crude oil supply of refining companies in the central states and Canada in which the Rockefellers and their philanthropies are interested, if the pending merger of the Sinclair Consolidated Oil Corp., and the Prairie Oil & Gas Co., and the Prairie Pipe Line Co., is concluded.

The line is being projected by the Ajax Pipe Line Co., a wholly owned subsidiary of the Standard Oil Co. of New Jersey. Its president is H. S. Austin, head of the Tuscarora Oil Co., another New Jersey subsidiary, which is engaged in piping gasoline from Bayonne, N. J., to an Ohio river terminal near Pittsburgh. The Tuscarora line transported western crude oil to the New Jersey company's refineries on the Atlantic seaboard before these refineries began to receive their raw material by tankship.

E. J. Sadler, vice president of the Standard of New Jersey, gave NATIONAL PETROLEUM NEWS these details of the Ajax project:

The system will consist of twin ten-inch lines with a daily capacity of 65,000 barrels. It will be approximately 375 miles long and will be laid on an air line between Cushing and Wood River, except for a small detour around the Ozarks in southern Missouri. It will have nine pump stations. The cost will be approximately $15,000,000.

The line will receive crude from the Carter Oil Co., another New Jersey subsidiary, producing oil in the Mid-Continent. Runs are expected to begin on completion of the system, which will be about the end of this year. Most of the right of way has been acquired and pipe is being forwarded as fast as it can be received from the mills.

Whether the line will be used to capacity on completion and to whom the oil will be delivered cannot be learned. Those are the details to be settled later, it was said.

The new line will bring a radical change in the movement of a large volume of Oklahoma crude oil. The Carter's production is being moved at present mostly south through the lines of the Oklahoma Pipe Line Co. to the Standard Oil Co. of Louisiana refinery at Baton Rouge and other points in the Gulf Coastal area.

Some exchange oil is being moved northeastward through the Prairie lines to Wood River where it is transferred to the Illinois Pipe Line Co. system (Ohio Oil Co.) or to Whiting, where it is transferred to the Indiana Pipe Line Co. system for movement eastward to the Buckeye Pipe Line Co. system. The Illinois line traverses Illinois, Indiana and Ohio.

Most of the Carter oil is transferred at Cygnet, Ohio, to the line which runs to the Imperial Oil, Ltd., New Jersey subsidiary, which has a refinery at Sarnia, Ont., Can.

The Sarnia plant is taking about 22,000 barrels of crude a day. Some of the crude is supplied by the Prairie company. The Standard Oil Co. of Ohio is receiving more crude daily than the Sarnia plant. Standard of Ohio is buying from Prairie Oil & Gas Co., it is understood. The Buckeye lines connect with the Standard of Ohio's refineries at Cleveland and Toledo, but this company's Latonia, Ky., plant is connected through a branch line with the Illinois Pipe Line Co., trunk line in Indiana.

Other refineries which are getting Mid-Continent crude oil through the Prairie lines as far east as Whiting, Ind., or Wood River, Ill., are the Solar Refining Co., Lima, O.; Paragon Refining Co., Toledo, recently sold to the Gulf Refining Co.; Craig Oil Co., Toledo; Atlantic Refining Co., Pittsburgh, and the Coraopolis, Pa., plant of Waverly Oil Works Co., at Pittsburgh. Waverly's Pittsburgh plant operates on Pennsylvania crude.

If the Sinclair-Prairie merger is concluded, as has been rumored for more than a year, Sinclair will sell its half interest in the Sinclair Pipe Line system to Chicago to the Standard Oil Co. of Indiana, owner of the other half and depend for its crude oil supply on the Prairie Pipe Line system, which would be taken into the consolidation.

The Standard Oil Co. of Indiana has been quite active within the past year, since the Sinclair-Prairie negotiations, in building up its own crude supply in the Mid-Continent. It will be remembered that Indiana recently purchased the assets of the McMan Oil & Gas Co. with a potential production of 14,000 barrels per day.

In the meantime the Dixie Oil Co., Indiana subsidiary, has become more

active throughout the Mid-Continent. It purchased a half interest some time ago in much of the undeveloped property of the Amerada Petroleum Corp.

It is doubtful that the Ajax line will carry oil for all the companies which are getting their crude supply through the Prairie lines, but the Ajax would provide the Imperial plant at Sarnia, the three Standard of Ohio refineries and the Ohio Oil Co.'s Lincoln Oil Refining Co. plant at Robinson, Ill., with crude in case Prairie should find it necessary to use its system to supply its affiliated refineries.

At least a large part, if not all, of the Rockefeller interest in the Prairie Oil & Gas Co. and the Prairie Pipe Line Co. has been sold to the Petroleum Corp. of America, an oil stock investment trust. The Rockefellers and their philanthropies are still the largest stockholders in the Standard of New Jersey, Standard of Ohio and the Ohio Oil Co., so the Ajax will be able to supply their refineries in case a merger might alter present business relationships.

Two crude lines besides the Prairie and Sinclair, that run to the Chicago refining area are those of the Shell Petroleum Corp., and the Texas-Empire Line. The Texas-Empire lines has connections with the Illinois Pipe Line for delivery of crude to at least two refineries in Illinois and Ohio.

The Ajax Pipe Line Co. this week rented offices in the Kennedy Building, Tulsa, and will occupy them as quickly as furniture can be moved in. Operating offices have been maintained at Springfield, Mo., for the past six weeks, with engineers of Ford, Bacon & Davis in charge. President Austin is now in Tulsa active in the affairs of the Ajax company.

Phillips Orders 800 Miles of Pipe For St. Louis Gasoline Line

BARTLESVILLE, Okla., June 5 PHILLIPS PIPE LINE CO., subsidiary of the Phillips Petroleum Co. has completed plans for its gasoline pipeline from the Panhandle of Texas to St. Louis, which was announced a few weeks ago.

An order for 800 miles of 8-inch electric welded steel pipe has been placed with the Republic Steel Corp. The 50,000-ton order will involve nearly $3,000,000 of the $15,000,000 project.

The Phillips gasoline line will be the first from the Mid-Continent field and the largest gasoline line ever built. Surveys have been completed and construction operations separated into six sections to facilitate completion by about January 1.

The line is to run northeast from the Phillips refinery at Borger, Texas, through Oklahoma and Kansas to Wichita and Kansas City and thence to St. Louis. An accompanying sketch shows the route to be taken.

Terminal facilities at Kansas City have been arranged to permit extension of the line north and east. Facilities at St. Louis will include dockage on the Mississippi river. This will permit barging gasoline as far north as Minneapolis and St. Paul where the Phillips Petroleum Co. has a large distributing unit for the northwest territory. It will be possible also to barge gasoline south to Memphis and New Orleans and via the Ohio river to Louisville, Cincinnati and Pittsburgh.

Bulk stations are to be built approximately 50 miles apart for the entire length of the line. At these stations gasoline will be taken from the line for distribution by tank wagon, truck train or rail in the same manner as at the Wichita, Kansas City and St. Louis terminals.

Adequate tankage is to be built at all terminals to provide for peak load demands.

When completed the line will serve a large area in the middle west where Phillips already has more than 8000 retail outlets. In this district the company is expanding further, having acquired several hundred new outlets since the first of the year.

Ten pump stations are to be built on the line. Each will be equipped with either electric driven centrifugal pumps or Diesel type. A pressure of 800 pounds will be maintained to insure a uniform load and constant rate of flow through the line.

The line has been designed as a closed system to eliminate the possibility of loss by evaporation or fire hazard. It will be divided into 20-mile sections which will be policed and inspected daily. Each walker will be equipped with an extension rod for attachment to the telephone line which is to parallel the line, so that he can report any trouble instantaneously.

It is the plan of the company to use the line for shipping various grades of gasoline, one following the other without loss or contamination. It will be used to ship natural gasoline as well as the refinery product.

To care for the larger demand expected as a result of the pipe line the company is enlarging its refining capacity at Borger.

To Ask Reports From Gasoline Lines

WASHINGTON, May 26

TAKING note of the fact that there is at least one pipe line in the country, the Tuscarora, that has rates on file offering to carry gasoline from Bayway, N. J. to points in New Jersey, Pennsylvania and into eastern Ohio, the statistical force of the Interstate Commerce Commission is planning to call on pipe line companies to make annual reports as to the amount of any refined product they carry. The forms now sent to pipe line companies call merely for the statistics pertaining to crude, showing the field and state of origin, the rate, the amount of crude transported and the revenue resulting therefrom.

It is proposed to require carriers of petroleum and products to give the particulars not only as to crude but the refined products as well, the points of origin of the refined, only, being required. The Interstate Commerce Commission, however, has not yet decided to make a change in the forms that would result in the gathering of statistics of refined products carried.

Were the Tuscarora the only pipe line likely to transport refined products this year the regulating body might not require the figures. It notes, however, that other companies are constructing such lines, hence the consideration of the matter.

There has been some discussion, also, of the question whether the pipe line companies should be required to make reports more often than once a year. As the statistical matters relating to pipe lines now stand the figures are purely historical. For instance, the amount of crude oil carried by pipe lines in 1930, will not be known, from any figures the rate body has collected, until February or March, 1931.

The rate regulating commission has only a limited jurisdiction over pipe lines. Any one may build a pipe line at any time or between any points without asking federal permission. A builder of a pipe line may issue stocks and bonds with no limit upon it, except its conscience.

In only one case has the regulating body ever been called upon to do anything about a pipe line rate or regulation. The one time it was called upon to act it reduced the minimum tender required on crude shipments from the Mid-Continent to Pennsylvania points. It is understood that every other dispute between a pipe line company and its customers or prospective customers has been settled without appeal to the public authorities.

The Editors' Viewpoint

National Petroleum News

Is the Main Issue Lost Sight Of?

IF THE main issue in the court proceedings in California involving the gas conservation law there is lost in a maze of relatively inconsequential legal technicalities, it will indeed be a sorry day for the oil producing industry in its attempts at self regulation of the production of crude.

That main issue is the duly recognized right of the majority of operators in a given pool, with the help of the state if necessary, to compel an unwilling minority to participate in an operating plan for that pool in the interests of conservation.

Without such affirmation of the principle of unit development by either a court decision, or legislative enactment, it is not likely that the industry can go very far with the adoption of unit development of oil pools. As is the case in the Santa Fe Springs and Long Beach fields, in California, there is always going to be a minority, possibly only one company, which will refuse to participate in a unit development plan for selfish reasons.

That minority may set up that they are looking out for the interests of their stockholders, or the royalty owners, or the landowners, or someone else; but what they are chiefly fighting for is their right to continue to take as much oil and gas from their surface holdings as they want, regardless of the market need for either the gas or the oil.

It is just about a year ago since the California gas law was passed. This law was virtually drawn up by the principal oil companies operating in the state. It places in the hands of the state the authority to prevent the waste of gas, and thereby presents a means for controlling oil production through providing for the establishing by the state of oil-gas ratios in flush fields. The ratio can be set by the state conservation authorities at a figure which will prevent the bringing in of more oil than there is market need for.

When the law was passed it was assumed it would become effective early in the fall. Then legal entanglements were found. Some were brought by a few oil companies seeking an injunction against the new law becoming effective. Others were brought by the state to have the courts pass on certain points and clear the way for making the conservation statute effective.

There the matter stands now, with the enforcement date of the new law as far distant in the future as ever, perhaps farther, and the main issue involved beclouded with the arguments of the lawyers over technicalities. There will be more writs asked and more delays and, with each one, the case becomes more of a lawsuit and less of a conscientious effort on the part of an industry and the state to establish a new fundamental operating principle.

Of course it is to be expected that, in the establishment of the principle of common ownership in the oil and gas underground in a pool, as opposed to the principle of individual ownership of all that can be brought to the surface, recourse will be taken to the courts. There is a public interest involved here, however, that should cause all parties concerned to expedite the cases as much as possible.

If that principle is not established in the cases in which the California gas statute is involved, the efforts of the oil industry to bring about unit development of oil pools will be delayed—but only delayed. For a principle which gives an industry a means of controlling its production to the end of stabilizing its own conduct, and is thereby in the interests of the public, aside from the matter of conservation, is economically sound enough to be established sooner or later.—V. B. G.

The Old Story At Oklahoma City

DESPITE all the conversation on the subject, the old order of things prevails whenever part of an oil field happens to lie in town-lot territory. Oklahoma City is the "horrible example" today.

Soundly managed oil companies have made progress in well spacing, although there is need for more education. At least, wherever they can, they operate on an orderly development basis. Such was the case in the Oklahoma City pool until wells showed that production was practically assured in the sub-divided territory. Now, inside the city limits, the race is on.

On one 10-acre tract six wells are being started. It is the thought of several operators that one well to 20 acres, or even to 40, would be sufficient in that pool. The waste of capital, through duplication of drilling, will be enormous. The reduction of pressure on the producing sand will be rapid, leaving behind quantities of oil that might be recovered under conservative methods.

The situation is rapidly getting out of hand. The fire chief has said that the city should spend a million dollars preparing to combat the fires that may come in residential and industrial sections where drilling is under way or threatened. Great loss of life and property is a possibility. Some of the irresponsibles who are promoting town-lot wells can be expected to let one of the big wells get away. Even the experienced operators have had their troubles getting their wells under control.

The city council did enact an ordinance which, in theory, limits drilling to one well to each five acres. It contains loopholes, however, that make it possible to drill wells even closer than that uneconomic, hazardous, imitation provides. With ample court decisions to show the way, the council muffed the ball. The promoters are busy there showing the public how to make a fortune by investing in a 6500-foot well on a few lots. Oklahoma City is about to duplicate the Signal Hill and Burkburnett townsite performances.—L. E. S.

Review of Late Production News

DAILY average crude production in the U. S. the week ended June 7 decreased 21,400 barrels, to 2,588,050 barrels, according to the American Petroleum Institute.

Crude oil imports doubled, being at the rate of 264,715 barrels daily average, compared with 143,430 barrels the previous week. Total new crude supply was 2,852,765 barrels, a gain of 99,885 barrels over week ended May 31.

Oklahoma output declined 13,450 barrels. California declined 5700 barrels.

Oklahoma City declined 9150 barrels; Earlsboro 4850 barrels; Little River 5100 barrels; and St. Louis 3300 barrels.

Konawa pool gained 6500 barrels; East Earlsboro 4850 barrels; Smackover heavy 3300 barrels; and Zwolle, 2550 barrels.

Salt Creek decreased 4200 barrels.

Current production in this country by pools is found on page 105.

Texas, New Mexico, Louisiana

THE No. 7 Connell well of The Texas Co. and Cosden partnership, which extended production a mile northwest of main development in the Judkins district, southeastern Ector county, West Texas, flowed at the rate of 30 barrels an hour after a "shot" of 260 quarts of nitroglycerin at 3460-3592 feet at the end of the week. It had previously produced a maximum of 107 barrels daily. Its completion will call for additional drilling on the west side of University Block 35, where state requirements had caused more rapid development than operators had preferred. Thirty producing wells in the field now average approximately 16,000 barrels daily.

In the Hobbs district of southeastern Lea county, New Mexico, operators hope to reach a prorating agreement similar to that now in effect in the Yates field of West Texas. Lea county, which is now producing approximately 18,500 barrels daily, thus would be removed from a market threat of perhaps 75,000 barrels daily by next October.

Big Lake Oil Co.'s C-1 University test, in Sec. 1, University Block 2, Reagan county, Texas, has taken honors for being the world's deepest producing well away from the Texon-Group 1 discovery. The C-1 well, which offsets the discovery on the west, flowed 321 barrels in the first 21 hours at total depth of 8661 feet. The discovery well produces from 8523 feet. Elevations and subsurface structural data considered, the C-1 well is 46 feet lower on the pay horizon than the discovery, adjusted data.

Operations elsewhere in Texas and Louisiana were of local importance only throughout the week.

California

CALIFORNIA daily average crude oil production was estimated at 597,200 barrels for week ended June 7, a decrease of 4800 barrels under the previous estimate. Active cooperation among all but a few Pacific Coast operators has accomplished this desired curtailment that brings the state's actual production to within easy reach of the 596,000 barrel allowable.

Elwood, Ventura Avenue and Long Beach were largely instrumental in effecting this reduction of daily output although operators in other fields contributed to the proration movement.

Crude oil prices at Santa Fe Springs were not restored to former levels the past week as had been anticipated. Rumors indicated no attempt will be made to adjust prices until the field is below its allowable of 104,000 barrels. Actual daily production from this area for week ended June 7 was 110,800 barrels.

Interest of California operators was divided between important developments in the Playa del Rey, and Potrero fields, and reports of coming production tests of promising wildcats in the Coastal region.

Playa del Rey has three producing wells and six others due for production tests within a week or ten days. Improvement in showings from wells on the ocean side of this field has created greater interest in the area.

Richfield Oil Co. obtained a 2500-barrel completion in the Potrero field. Although the project later fell off to 2114 barrels per day cutting 40 per cent, mostly emulsion, it is thought to have opened a heavier pay sand.

Oklahoma-Kansas

IN THE Mid-Continent production news of the past week, the major portion of the interest and certainly most of the excitement was in the Oklahoma City pool. In this field the town-lot drilling is causing plenty of trouble for the city officials as well as the operators. An indication of what the operators are to be up against was found in the drilling together of two wells in this congested district. The city council is already thinking of increasing the size of the drilling zone in the city limits and a large number of permits will result.

In Kansas, the Ritz pool was threatened with a two mile extension. The rest of the state had a quiet week as far as completions were concerned, though there were 46 new locations staked. The Texas Panhandle topped this figure with 51 and things started to move like they used to over there. It is all due to lapsing leases however, and not to a boom.

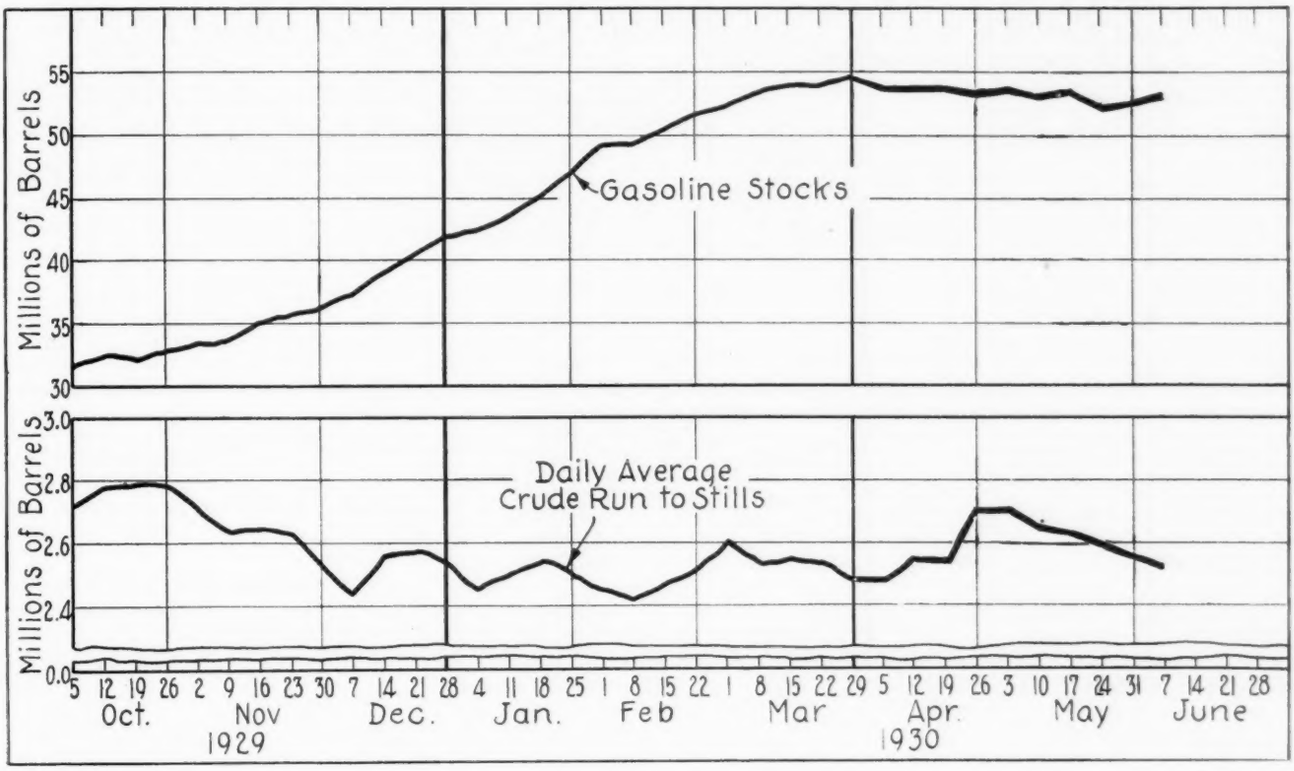
Wyoming, Montana

PRODUCTION has been discovered in the north end of the Oregon Basin field, northwestern Wyoming—an area which has hitherto been considered not particularly important.

Prairie Oil & Gas Co. has discovered oil in the Embar sand in its deep test in the Little Lost Soldier field. This is the first Embar production to have been found in this district. At Mahoney Dome the Producers & Refiners Corp. has a 75-barrel well in its joint deep test with the Midwest Refining Co. Oil is very hot and is coming from the Tensleep sand.

Wildcat test on Baggs structure, southern Carbon county, Wyoming, struck a 25,000,000 cubic foot gas flow at 2172 feet; this has been shut off and well is being drilled deeper.

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.



Coastal Refiners Increase Gasoline Stocks

Staff Special—By Telegraph
NEW YORK, June 10

OVERPRODUCTION of gasoline at seaboard refining centers continued the first week of June, according to reports gathered by the American Petroleum Institute.

In the face of a limited increase in gasoline shipments the coastal manufacturers increased their crude runs substantially and as a result found it necessary to place additional amounts of gasoline in storage. Meanwhile all inland refining groups either reduced runs or kept throughput substantially unchanged and drew small amounts from gasoline storage.

Total crude runs for the U. S. were increased 105,300 barrels daily average to 75.7 per cent of capacity, as compared with 72.8 per cent the previous week. Gasoline stocks increased 542,000 barrels to 53,257,000 barrels.

California refiners increased their crude runs 68,000 barrels daily average and were forced to add 432,000 barrels of gasoline to storage. Texas Gulf Coast refiners increased their crude runs 20,300 barrels daily and added 246,000 barrels of gasoline to storage. East coast refiners increased crude runs 61,000 barrels daily average but added only 30,000 barrels indicating a good increase in demand in that area. Louisiana Gulf Coast refiners made only a small increase in runs and drew 34,000 barrels of gasoline from storage.

Fuel oil stocks of all reporting plants increased 796,000 barrels to 138,389,000 barrels.

Current Refinery Operations

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks (Thousands of Barrels)			
		June 7	May 31	June 7	May 31	Gasoline June 7	Gasoline May 31	Gas & Fuel Oil June 7	Gas & Fuel Oil May 31
East Coast	100.0	541,600	480,600	89.4	79.3	9,069	9,039	8,302	7,729
Appalachian	91.0	81,600	85,100	70.0	73.0	1,785	1,807	820	835
Ind., Ill., Ky	99.6	327,000	326,700	85.8	85.7	8,347	8,355	3,964	3,896
Okla., Kans., Mo	89.8	293,100	310,600	70.6	74.8	4,803	4,861	4,656	4,442
Texas	90.8	582,600	572,400	81.4	80.0	7,631	7,423	10,440	70,340
La., Ark	96.8	165,800	174,600	63.3	66.6	2,470	2,495	2,083	1,835
Rocky Mountain	93.6	58,300	62,700	41.9	45.0	2,772	2,787	1,142	1,127
California	99.3	621,600	553,600	69.7	62.1	16,380	*15,948	106,982	*107,389
Total	95.8	2,671,600	2,566,300	75.7	72.8	53,257	*52,715	138,389	*137,593
Texas (Gulf Coast)	100.0	442,600	422,300	84.1	80.2	6,451	6,205	7,517	7,458
La. (Gulf Coast)	100.0	123,000	119,900	83.4	81.3	2,053	2,087	1,169	989

*Revised

Revision of Gasoline Specifications Discussed in Washington

By Arch L. Foster
N. P. N. STAFF WRITER

WASHINGTON, June 7 THE proposed revision of federal specifications for motor gasolines was one of the main topics of discussion among the technologists of the National Petroleum Association on their annual visit to the Bureau of Standards here June 6.

The tentative revisions, as presented to the visiting refineries are intended to simplify and clarify the specifications adopted by the Board June 11, 1929, which became effective on Sept. 11 last year.

Bureau technologists also discussed before the meeting the work being carried on there on knock testing; vapor lock and fuel carburetion; behavior of explosions in motor cylinders; engine and laboratory tests on lubricating oils to determine stability, efficiency and resistance to oxidation in service; flow of oils at temperatures below their pour points and other studies, especially on plane engines under conditions simulating those encountered in flying at various altitudes.

Dr. O. C. Bridgeman, well known bureau authority on motor fuels, presented concisely the results of practical investigations on the effect of the volatility and distillation characteristics of fuels on their operating efficiency. According to Dr. Bridgeman the 10 per cent, 50 per cent, and 90 per cent points in the distillation curve are the significant points which determine the relative performance characteristics of the fuel in service. These are the points which are fixed in both the old and the tentative new specifications. He states that:

"Recent work has shown that the 10 per cent and 90 per cent temperatures in the A.S.T.M. distillation are the most significant points and that it is desirable to limit the intermediate ranges by fixing the maximum temperature at 50 per cent point. The initial point, end point and gravity have no general significance. The 10 per cent point determines ease of engine starting, making it necessary to place an upper limit of temperature at this point. The 10 per cent point likewise determines the vapor-locking tendency of properly weathered gasolines, which makes it desirable to place a lower limit on the 10 per cent temperature.

"Since both ease of starting and vapor lock depend upon the atmospheric temperature, some variations in the specification temperatures are permitted under certain climatic conditions. The 90 per cent point indicates the temperature of complete vaporization of the air-fuel mixtures and the limit imposed ensures reasonable freedom from crankcase dilution.

"Specification of the 50 per cent point ties down the middle portion of the distillation curve in order to make sure of satisfactory acceleration with the gasoline. The proposed revision of aviation gasoline specifications aims to bring the points specified in line with the recent research work at the bureau regarding the points which are significant and the permissible temperatures."

The tentative revisions now being studied are intended to include in the specifications the results of more recent investigations on the properties of fuels at the bureau and elsewhere, by different investigators. It is proposed to eliminate entirely the present minimum 10 per cent temperature which was inserted last year as a safeguard against the sale to the government of fuels likely to cause trouble from vapor lock, and to insert a requirement limiting the Reid vapor pressure of the fuel. Vapor pressure is now considered to be a more dependable indication of the tendency to vapor lock than the temperature of the 10 per cent point on the distillation curve.

On account of a recent ruling by the Federal Specifications Board that no flexibility may be permitted in the requirements of any individual specification, it has been necessary for the Technical Committee to provide specifications for four grades of motor fuel. These meet the needs of the government in the different localities where motor fuel is used.

This ruling was passed, it is understood, to avoid any possibility of ambiguity or misunderstanding as to the purpose, meaning or application of the different provisions of fuel specifications. It has, however, greatly complicated the work of the committee and its advisory board in preparing suitable working specifications, according to statements made by different individuals in these groups.

Because of this ruling four sets of requirements have been outlined: U. S. Motor Gasoline; Motor Fuel F, for cold weather operation; Motor Fuel T for tropical use and storage; Motor Fuel V for special purposes such as ambulances, fire equipment, etc., where volatility higher than that of U. S. Motor is desirable.

Table 1 gives the provisions of the specifications at present in force, and also outlines the tentative changes

Table 1

Present U. S. Specifications for Motor Fuels

Distillation Points	U. S. Motor	Motor Fuel F	Motor Fuel T	Motor Fuel V
	F.	F.	F.	F.
10% max.	176	158	176	149
10% min.	122	122	140	122
50%	284	284	284	257
90%	392	392	392	356
End Point U. S.	437	437	437	401
Recovery, %	96	96	96	96
Residue	.....	.....	.....	.....
Sulfur, % max.	0.10	0.10	0.10	0.10
Gum	.....	.....	.....	.....
Vapor pressure, lbs.	.....	.....	.....	.....
New Specifications Tentatively Suggested				
Distillation Points	F.	F.	F.	F.
10%	167	149	167	158
50%	284	284	284	257
90%	392	392	392	347
End Point	437	437	437	392
Recovery, %	.....	.....	.....	.....
Residue, % max.	2	2	2	2
Sulfur, % max.	0.10	0.10	0.10	0.10
Gum,	.....	.....	.....	.....
Vapor Pressure, Reid,	10 lbs.	12 lbs.	8 lbs.	10 lbs.

—N. P. A. photo

National Petroleum Association technologists who gathered at the U. S. Bureau of Standards, June 6 and 7 for their annual meeting to study laboratory methods

Oil company technologists making the visit to the U. S. Bureau of Standards, under the auspices of the National Petroleum Association were:

H. C. Salisbury, chemist, Bradford Oil Refining Co.
Luis W. Hodous, plant engineer, William Klein laboratory, Canfield Oil Co.
W. W. Scheumann, chief chemist, Cities Service Refining Co.
R. S. Dawson, chemist, Conewango Refining Co.
E. F. Hanna, Continental Refining Co.
Ralph H. Cool, chemist, experimental laboratory; A. K. Graham, chemical engineer;, J. W. Griswold, superintendent of refineries; J. Omar Hartman, chemist; E. M. Keely, superintendent; J. H. Lawser, assistant chemist; W. N. Westcott, chemist, Crew Levick Co.
J. W. Fawcett, assistant manager. L. R. Toy, chemist, Crystal Oil Works Co.
W. E. Forney, research chemist, Doherty Research Co.
Eugene Kirk, chief chemist, Elk Refining Co.
F. J. Planker, tester, Emlenton Refining Co.
C. J. Everett, chemical engineer, Empire Oil & Refining Co.
W. S. Smith, chemist, Empire Oil Works, Reno, Pa.
L. B. Heath, superintendent; Fred L. Way, chief chemist, Freedom Oil Works Co.
Russell R. Buckham, chemist, Independent Refining Co.
J. J. Loudermill, chief chemist, Indiana Refining Co.
A. P. Fischer, salesman, Industrial Oil Corp.
C. E. Hulme, control chemist, Frank Philippbar, Kendall Refining Co.
Franklin Bowley, chemist, McKean County Refining Co.
Victor I. Downey, chief chemist, National Refining Co.
G. R. Dye, chemist, Ohio Valley Refining Co.
Harold Jones, chemist, Pennsylvania Refining Co.
Robert C. Bowman, research chemist, J. M. Hinman, assistant superintendent, Pennzoil Co.
Geo. T. Yost, resident chemist, Pure Oil Co.
C. A. Bock, assistant research chemist, Sinclair Refining Co.
Louis F. Heitz, chemist, Standard Oil Co. of Kentucky.
Reginald G. Sloane, lubrication engineer, Standard Oil Co. of New Jersey.
Robert E. Burk, consulting chemist; L. B. Helm, superintendent; E. B. McConnell, assistant to vice president, Standard Oil Co. of Ohio.
C. A. Neusbaum, assistant director, Standard Inspection Laboratory, Standard Oil Development Co.
R. B. Allmendinger, tester, Superior Oil Works.
F. W. Richardson, chemist, Swan-Finch Refining Co.
John T. McCoy, assistant technologist, Tide Water Oil Co.
Alfred C. Swart, Tidioute Refining Co.
Clarence R. Johnson, chemist; George J. Murphy, chemist; Edwin D. Peterson, chemist; H. W. Walchli, superintendent, Tiona Refining Co.
G. C. Davidson, Tri-State Refining Co.
MacLean Houston, production manager; H. W. Wagner, chemist, United Refining Co.
R. L. Brooks, filterhouse foreman, Wilberin refinery; T. E. Fischer, tester; Arthur Hagan, chemist, Valvoline Oil Co.
E. O. Meddock, tester, Viking Oil Corp.
Fred Alzingre, tester, Warr Penn Refining Co.
Wm. T. Sieber, chief chemist, Waverly Oil Works Co.
Fayette B. Dow, general counsel; Horace L. Lohnes, assistant, National Petroleum Association.

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being considered by the Government Committee.

Note that the vapor pressures specified range from 8 pounds per square inch for tropical fuel to 12 pounds for fuel intended for cold weather operation. When questioned regarding gum and sulfur specifications Dr. Bridgeman stated that the bureau and many refiners and interested organizations have been carrying out extensive work for a considerable time in the attempt to determine a more suitable and reproducible method of determining gum content in fuels. He stated that the problem is not yet solved satisfactorily, at least for specification purposes. The copper dish test, which is used on aviation fuels, is not satisfactory, and has been so recognized for many years, but is left in the specification methods until a more suitable method can be devised.

He further stated that no schedule for investigation of the sulfur problem has as yet been laid out or undertaken by the government, but that such a program is contemplated. Pressed further by questions, Dr. Bridgeman stated that the bureau had for a long time taken the attitude that such an investigation, to be entirely free from any possible charge of bias or undue influence from industry should be carried out wholly on funds provided directly by the federal government, and that such funds have not yet been provided by Congress, although an appropriation has been requested. Therefore such funds must be obtained before the work can be begun.

Referring to the end point requirement in the distillation test, McL. Houston, of the United Refining Co., Warren, Pa., asked if the inclusion of a maximum residue specifications does not eliminate the necessity for limiting the end point. Bridgeman replied that for years the government has recognized that the end point is not significant in controlling the quality of fuels by specifications, in fact it was left out of the first tentative revision of 1929, but was reinserted at the insistent request of some oil companies who considered it to be of major importance.

Aviation fuels have also been considered by the committee, and the following limits have been tentatively suggested:

Distillation Points	Domestic Aviation	Fighting Aviation
10%	149 F.	140 F.
50%	230 F.	203 F.
90%	320 F.	284 F.
Vapor Pres.	10 lbs. Reid.	10 lbs. Reid.
Sulfur, % max.	0.10	0.10

Asked regarding the practical limits of the ten per cent temperature in motor fuels, Dr. Bridgeman stated that the tendency among many refiners is to lean too far in the direction of excessive initial volatility, and the tests have shown that, for average conditions, a 10 per cent temperature lower than 140 F. does not insure against vapor lock troubles, although a fuel lower at this point may be used without trouble in many cases, depending in some measure on the characteristics of the car and its operation.

Research and routine work on methods of determining detonation characteristics carried on at the bureau was outlined briefly by D. B. Brooks of the bureau staff. For several years the bureau has been using a specially built single cylinder Liberty engine for testing fuels for knock tendency; tests are made by comparing the knock intensity of a fuel with a standard fuel, using the "audible" method of comparing the knock.

The bureau also has installed one of the new test engines recently made standard by the Ethyl Gasoline Corp. for testing ethyl gasolines, which is used to make tests involving these fuels, and for comparative studies of different methods. The bureau is cooperating with several other laboratories in formulating and standardizing a test method, using the Horning engine as built specially for the cooperative committee by the Waukesha Co.

This engine is designed to permit

the use of a variable compression head, compression being varied by raising or lowering the cylinder to change the clearance space above the piston. A fixed compression head may also be used, this being of the L-head type, for determinations at a constant ratio. Brooks also gave several references to the literature on knock testing[1].

R. C. Hardy, in discussing laboratory testing of engine oils for relative stability, stated that, in connection with engine tests on oils now being carried on at the bureau, they hope to determine the correlation, or lack of correlation, between the (Sligh) oxidation number and deterioration of oils in service. Discrepancies between carbon residue results and the formation of sludge, etc., in an engine seem to indicate that the conditions of the two methods of test, i. e., the Conradson test, and engine operation results, are not exactly comparable, and it is hoped that the oxidation number will show more correlation with service results.

It appears that the solid or chloroform-insoluble portion of oil sludge formed in the engine is made up chiefly of coke produced by cracking, "varnish," dirt and metal from bearings and other engine parts. Data now available are too few to determine, but it is the opinion of the author that, if coke predominates in most sludges, then an oxidation test at a comparatively high temperature should give more dependable and correlated results.

For years technologists have attempted to develop a dependable method of measuring the relative efficiency and wear-resistance of engine oils by actual engine tests under approximately service conditions. The bureau has set up a six-cylinder engine fitted with a fan brake for the purpose of testing oils. This engine is designed for high speed truck or bus service, develops 75 horsepower at 2500 revolutions per minute, cylinders 4-inches by 4¾-inches, and the crankshaft has seven main bearings with pressure lubrication.

The load employed in testing is approximately 45 horsepower, at about 1200 revolutions per minute, jacket water is held at the boiling point, and the test runs for three periods of 10 hours each, or 2,160,000 revolutions. This is equivalent to approximately 750 miles in service. A reference oil is used to compare other oils, at present a paraffin and a naphthene base oil of the same Saybolt viscosity at 210 F. (88 S.U.V. secs.), are used.

Changes which have occurred in the oils during the test are shown by the items listed in Table II.

This work is yet in its infancy, and not enough data is available to suggest conclusions. The most noticeable difference in the oils discovered so far is the variation in carbon deposition of the two types, the asphalt base oil yielding a much smaller percentage of carbon in the cylinder than does the paraffin base oil. The work is being supervised by C. W. Staples.

Ronald Buckley demonstrated the properties of different oils at temperatures below their pour points. Apparently diluting an oil has comparatively little effect on its flow property, within certain limits. Dilution does however, affect the action of the oil after working, diluted oils flowing more freely after agitation at temperatures below the pour point than the same oil undiluted.

By curves it was shown that, at lower pressures, naphthene base lubricants flow more freely than do those of paraffin base, but it appears that, at higher pressures the curve of flow for paraffin oils rises faster than that for the opposite type. Although paraffin oils will flow reasonably well even below their pour points after agitation has broken up the mass, the danger of failure of lubrication on starting a cold engine is very possible, due to the inability of the pump to draw the solidified oil from the reservoir into the oiling system.

Friday afternoon and Saturday morning were spent by the N. P. A. technologists in inspecting the various installations of the bureau for studying fuels and lubricants. Particular interest was shown by the visitors in the knock testing apparatus, lubricant testing and the equipment and methods for studying volatility of fuels, and the characteristics of gaseous explosions in the automotive cylinder as shown by the stroboscope. Fundamental studies of the oiliness property of lubricants as shown by the Herschel machine and the determination of the consistency of greases and very heavy oils by the Buckley Consistometer being carried on by Dr. W. H. Herschel and Mr. Buckley were discussed at length, with demonstrations of the operation of the instruments.

[1]Methods of measuring Anti-knock—by H. K. Cummings, Jr. S. A. E., May, 1927, page 599. Results of Two Recent Detonation Surveys, H. K. Cummings, Jr. S. A. E., April, 1928, page 448.
Jr. S. A. E., Feb. 1929, page 212.
Bull. A. P. I., Jan. 2, 1930, Section III, page 32.
Jr. S. A. E., July 1929, page 80.

Table II

Measurements for Changes Due to or in the Oil

1. Engine friction by deceleration.
2. Speed variations.
3. Bearing temperatures.
4. "Carbon" formation
   a. Total weight
   b. % naphtha insoluble
   c. Metals
   d. Dirt
   e. "Carbon"
5. Oil Consumption
6. Wear data
   a. Metal in oil
   b. Gaging of cylinder diameters
7. Oil tests (not included above):
   a. Viscosity at 100 degrees F. (before and after)
   c. Flash point (before and after)
   d. Conradson carbon residue (before and after)
   e. Demulsibility (before and after)
   f. Ash (before and after)
   g. Acidity (new oil only)
   h. Slight oxidation (new oil only)
   i. Naphtha insoluble (used oil only)
   j. Chloroform insoluble (used oil only)
   k. Dilution (used oil only)

Hydrogenate Canadian Tar To Produce Gasoline

CLEVELAND, June 9.—Manufacture of hydrocarbons of the gasoline range from the tar of northern Alberta on a semi-commercial scale is reported to have been begun recently by the installation of a small plant in that province of Canada near the deposits.

Practically inexhaustible deposits of tar sands occur in the northern portion of Alberta. Drs. E. H. Boomer and A. K. Clark of the University of Alberta have completed research on the problem of hydrogenation of this tar, utilizing hydrogen from the natural gas occurring in the same locality. The study was financed by the National Research Council, and has been carried on over a period of several years. This result was announced a short time ago before the Council at Ottawa.

Details of the method have not been disclosed, but it appears that the tar is first hydrogenated to form a comparatively light oil, which is then cracked in the ordinary manner to produce gasoline. It is felt that the cheap production of gasoline by this method, from raw materials in which Canada is rich, may aid in solving the problem of manufacturing that country's motor fuel at home, eliminating the necessity for importation.

Dubbs Sues Gulf Refining Co. On De Florez Process

CLEVELAND, June 9

THE Gulf Refining Co. is the defendant in the latest lawsuit filed by the Universal Oil Products Co. of Chicago, the suit having been filed on June 3 in the U. S. District Court for the Eastern District of Pennsylvania at Philadelphia. This suit charges infringement of 61 claims in 12 cracking patents held by the plaintiff company.

Interviewed at Pittsburgh, Gulf Co. officials refrained from making any public statement regarding the suit.

It is understood that, while no process operated or owned by the Gulf is named as such, the suit is directed against the de Florez vapor phase process recently developed by the Gulf under the direction of Louis de Florez, nationally known engineer and designer of refinery equipment.

Development of this process was started on a large scale in 1927, by the erection of a plant at the Bayonne, N. J. refinery of the Gulf, under a co-operative agreement between that company and The Texas Co. Eleven patents issued to C. M. Alexander and owned by the Gulf Co., and 12 patents issued to W. A. Hall, owned by the Texas Co. were the basis for the work which resulted in the development of the so-called de Florez process, usually referred to as a vapor phase method.

Recently four units of this process were erected at the Point Breeze refinery of the Gulf Co., and a contract has been completed for the construction of four other units at the Atlantic refinery near Philadelphia, to be built by the M. W. Kellogg Co. of New York. The original installation at Bayonne was described some time ago in NATIONAL PETROLEUM NEWS.[1]

One of the patents held by the plaintiff, which the suit charges has been infringed, is No. 1,281,884, issued to M. J. Trumble, Oct. 15, 1918. The chief features of this patent which is under consideration is the method of operation in a closed system or "ring," whereby degraded oil is drawn continuously from the system, being replaced also continuously with fresh oil.

Other patents, on which infringements are claimed, are:

No. 1,392,629, issued to C. P. Dubbs October 4, 1921.

No. 1,484,445, issued to C. P. Dubbs, February 19, 1924.

No. 1,488,325, issued to C. P. Dubbs, March 25, 1924.

No. 1,525,281, issued to C. P. Dubbs, February 3, 1925.

No. 1,534,927, issued to C. P. Dubbs, April 21, 1925.

No. 1,543,833, issued to Gustav Egloc and H. P. Benner, June 30, 1925.

No. 1,546,634, issued to C. P. Dubbs, July 21, 1925.

No. 1,551,090, issued to C. P. Dubbs, August 25, 1925.

No. 1,600,721, issued to C. P. Dubbs, September 21, 1926.

No. 1,682,744, issued to Gustav Egloff, September 4, 1928.

No. 1,690,997, issued to C. P. Dubbs, November 6, 1928.

[1]May 1, 1929, page 69; Nov. 30, 1927, page 17.

Phillips To Erect 49th Gasoline Plant

BARTLESVILLE, Okla.—The 49th natural gasoline plant will be built by the Phillips Petroleum Co. near Hobbs, Lea county, N. M., on a recently opened railroad connecting with the Texas-Pacific. The plant will be of the absorption type with an initial capacity of 40,000,000 cubic feet of gas daily. Production will be 50,000 gallons daily. This is the fourth natural gasoline plant authorized by the Phillips company the past 60 days.

No Tank Car Loading Rack For New Denver Refinery

PONCA CITY

THE 1500-barrel refinery to be build at Denver by the Continental Oil Co. is to be a plant without a tank car loading rack, according to tentative construction and operating plans.

Products distributed in the territory to be served by the new refinery, including the cities of Denver, Longmont, Brighton, Louisville, Broomfield and Lafayette, will be handled by automobile "Big Berthas," consisting of tank trucks and one or more tank trailers.

The plant is to be complete refining unit, having topping and cracking equipment, vapor recovery system, and an Ethyl blending unit.

Crude will be charged from storage. It will take heat exchange on the cracking units, flashing into a 10-foot by 55-foot topping tower. It is planned to take a side cut of kerosene from the topping tower. This product will be treated, sweetened, and run to storage.

Provisions will also be made to take a tray cut of light gas oil from the topping tower. This gas oil will be used as absorption oil in processing the recovered vapors through the absorption plant which will be built for that purpose. The topped crude will be pumped from the bottom of the topping tower to the tube furnace of the cracking unit.

The overhead stream from the pressure tower will be treated through Gray towers, given another fractionation, and sent to storage as finished gasoline.

Cone-bottom tanks will be used for sweetening, and lead lined agitators for acid treating the kerosene. It is not expected that the pressure products from the crudes will need acid treating.

The plant will be electrically operated, using no steam driven pumps at all. One small boiler will be installed for fire protection, and for processing steam. The electric power will be purchased. It is planned to use city water. A 1000-g.p.m. cooling tower will be installed.

The crudes which will be processed at the new refinery will be received by tank car from the Fort Collins, Colorado, and Rattlesnake, N. M., fields. They will be handled in the approximate ratios of two of the former to one of the latter. The following table gives some of the recovery percentages of the two crudes:

	Fort Collins Per cent	Rattlesnake Per cent
Gravity	33.2	62.0-63.0
Gasoline (U. S. Motor)	33.4	83.0-85.0
Kerosene	2.0	6.00
Bottoms	33.9	9.00
Gas Oil	24.8	

The refinery site is a 100-acre tract at the outskirts of the city of Denver, on the Denver-Brighton-Longmont road, some four miles from the business district of the city.

Considerable attention is being paid to the future appearance of the plant in the layout plans. A long, one-story building, properly divided, will house the main office, control room, lockers, warehouse, and laboratory. There will be one main pump building. It is planned to build company houses for the employes.

Lighting posts, lights, shrubbery and grass are to be provided, to make the plant attractive, as well as efficient.

Supreme Court Removes Rail Rate Threat by Hoch-Smith Ruling

WASHINGTON, June 9

THE Supreme Court of the United States, on June 9, removed a menace to the oil industry. The court decided that the Hoch-Smith resolution, adopted in January, 1925, could not be used by the Interstate Commerce Commission, to make rates for the benefit of the supposedly depressed farming industry, lower than it would have dared make under the part of the law authorizing it to prescribe reasonable freight rates.

In substance the court held that the resolution was but a gesture, an expression of a hope that the freight rate body, after examining all the rates in the land, would find itself able to give some of the "relief" congress seemed to think the farmers were entitled to receive. The court said that the resolution had not granted any added powers to the freight rate body but had merely told it to investigate the whole freight rate body and give to the agricultural industry the "lowest possible lawful" rates.

The court said that the lowest possible lawful rates meant such as could be prescribed under the parts of the interstate commerce act as it existed before the adoption of the Hoch-Smith resolution.

So viewing the resolution the court said the Interstate Commerce Commission had erred when it construed the Hoch-Smith resolution to mean that it authorized the rate body to make rates, on deciduous fruits from California to the region east of the Rocky Mountains, lower than it could makes them without the aid of the resolution. In the case which the railroads carried to the courts the rate body ordered the railroads to cut their rate from $1.70 cents a hundred to $1.63, or a little less than 8 per cent.

Because of the resolution the rate body decided that the rate of $1.73, which it had approved as reasonable only a few weeks before the resolution was adopted, was and would be unreasonable to the extent it might exceed $1.63. That was in the fall of 1927.

Although the rate body was not enthusiastic about the resolution it nevertheless initiated 13 great inquiries into the rates on the principal commodities hauled by the railroads, with a view to removing injustices and obeying the behest to give the products of depressed agriculture the "lowest possible lawful rates" in accordance with the resolution which it construed to mean that rates should be put on such commodities that would be lower than possible under the law as it stood prior to the enactment of the resolution.

The commission, in various utterances about the resolution, plainly intimated to other industries that they would have to pay higher freight rates to the end that the products of agriculture might be moved at rates at the lowest possible reasonable rates.

Two of the investigations instituted pertained to petroleum and its products, one in the southwest and one in the southeast. The main part of the Mid-Continent field was omitted because the rates therein had been adjusted in 1925 and various parts in later years. California was also omitted because much has been done with them in formal complaints about the rates from southern California to Arizona and New Mexico and from and to points in the Rocky Mountain region.

The fortunate part of the whole matter is that the court ruled just before the rate body entered the era in which it would begin making decisions in the 13 big investigations. Proposed reports in the petroleum investigations have been made by the examiners who heard the testimony. They recommended a good many increases in rates on petroleum and its products and few reductions, evidently because the commission had taken the position that congress had ordered a preference for the farmers.

Now whatever increases they recommended because of the idea that congress had done that will have to be eliminated. The court said that all the resolution did was to order the commission to examine the rate structure and to make such changes as it could for the removal of things condemned by the law before the adoption of the resolution. Therefore there is nothing unlawful about the investigations themselves but the reports on them will have to conform with the standards of the law as it was before the resolution was adopted.

March Tax Reports Show 9% Gasoline Increase

NEW YORK, June 5.—Gasoline consumption in 43 states in March was 804,719,000 gallons, according to the American Petroleum Institute. This is an increase of 53,476,000 gallons, or 7.1 per cent, over consumption in March, 1929.

The daily average in March, 1930 was 25,959,000 gallons, compared with a daily average of 23,768,000 gallons in February. This is an increase of 9.2 per cent.

Gasoline consumption in these states for the three months ended March totaled 2,138,994,000 gallons, compared with 1,915,579,000 gallons for the corresponding period of 1929, a gain of 223,415,000 gallons, or 11.7 per cent.

Here are March figures on gasoline consumption, this year, compared with last year:

March Gasoline Tax Report

(Figures in thousands of gallons)

	March 1930	March 1929	% Change over Mar., 1930
Alabama	14,128	13,364	+ 5.72
Arizona	6,393	5,790	+10.41
Arkansas	9,684	8,335	+16.18
Colorado	12,821	13,668	— 6.20
Connecticut	16,461	12,972	+26.90
Delaware	2,801	2,598	+ 7.81
Dist. of Columbia	6,069	5,544	+ 9.47
Florida	22,724	22,349	+ 1.68
Georgia	17,601	16,793	+ 4.81
Idaho	3,702	2,857	+29.58
Indiana	35,984	37,608	— 4.32
Iowa	31,131	20,129	+54.66
Kansas	31,003	27,511	+12.69
Kentucky	12,394	10,700	+15.83
Louisiana	15,089	13,436	+12.30
Maine	4,614	3,863	+19.44
Massachusetts	36,241	32,765	+10.61
Michigan	56,490	73,729	—23.38
Minnesota	27,353	23,168	+18.06
Mississippi	(a)11,302	10,610	+ 6.52
Missouri	34,761	27,860	+24.77
Nebraska	19,009	29,252	—35.02
Nevada	1,179	1,222	— 3.52
New Hampshire	3,219	2,623	+22.72
New Jersey	39,841	34,067	+16.95
New Mexico	3,949	3,042	+29.82
North Carolina	18,484	18,474	+ 0.05
North Dakota	6,074	6,319	— 3.88
Ohio	73,744	69,720	+ 5.77
Oklahoma	27,015	23,595	+14.49
Oregon	13,471	11,464	+17.51
Rhode Island	6,590	5,022	+31.22
South Carolina	9,605	9,364	+ 2.57
South Dakota	9,622	7,156	+34.46
Tennessee	15,574	13,115	+18.75
Texas	65,181	59,521	+ 9.51
Utah	4,126	3,691	+11.79
Vermont	2,114	2,238	— 5.54
Virginia	16,655	14,440	+15.34
Washington	21,448	19,664	+ 9.07
West Virginia	8,811	7,752	+13.66
Wisconsin	27,955	21,432	+30.44
Wyoming	2,307	2,421	— 4.71
Total	804,719	751,243	+ 7.12
Daily Average	25,959	24,234	+ 7.12
Increase over previous year:			
Amt. of Increase	53,476		
Percentage increase in Daily Average	7.1%		
New York	104,205		
Illinois	68,967		

	Jan. 1930	Feb. 1930
Maryland	10,790	10,701

(a) Estimated

	Quarter Ended Dec. 31 1929	Mar. 31 1930	Mar. 31 1929
California	323,592	295,461	287,770
Montana	19,302	9,032	8,695
Pennsylvania	247,044	204,100	147,931

INDEPENDENCE, Kan.—Total deliveries of the Prairie Pipe Line Co. of crude oil in May were 5,675,941.09 barrels, or 183,095 barrels per day. In April the deliveries averaged 185,846.31 barrels.

Pump Company Changes Name

CLEVELAND, June 9.—J. P. Hanna, president of the National Recording Pump Co., announced June 5 that the name of that corporation has been changed to National Pump Corp. No changes were made in policies, personnel or otherwise, Mr. Hanna said. The new name was chosen because of its simplicity and the fact that it seemed to fit all angles of the company's business more fully.

Sealers Condemn Dispensing Motor Oil in Bottles

WASHINGTON, June 7

RETAILING of motor oil in glass bottles into which quantities of oil have been measured, and the bottle sealed, was condemned by the state sealers of weights and measures and representatives of the U. S. Bureau of Standards at their 23rd annual conference here June 3 to 6.

The state officials felt that this method of handling oil "tended to deceive and afforded opportunities to perpetrate fraud upon the buyer." They passed a resolution disapproving the use of bottles.

The same conference voted to postpone for six months the effective date of the new specifications for grease measuring devices, which provide that such devices must automatically meter the amount of grease dispensed and that such metering must be in liquid measure, instead of by weight.

These specifications were first proposed two years ago. They were tentatively adopted at the sealers' conference last year and were to become effective this July 1. The oil industry held a protest meeting just prior to the conference at which it was pointed out that devices meeting the new requirements were not yet sufficiently manufactured and distributed. The effective date was postponed until Jan. 1. next, with the tentative promise on the part of the conference that a further postponement would be granted if necessary.

The conference also amended the code pertaining to bottles for motor oil used for measures, as to length of the spout and the overall height or length of the bottle. The length of the spout is limited to six inches on a quart bottle, making the overall height of the bottle 16.5 inches.

This amendment applies only to bottles used as measures, bottles being used simply as containers being condemned, in the following resolution:

"Whereas, lubricating oil dispensing bottles have been placed in service in many parts of the country which far exceed the over-all height allowable by the lubricating oil bottle code and which do not comply with its requirements with regard to capacity markings; and,

"Whereas, exception from compliance with the code is claimed on the basis that the bottles are containers and not measures because of the fact that the oil is measured into the bottles and the bottles then sealed; and,

"Whereas, the oil is not delivered to the customer as in the case of other packaged commodities, but is transferred to the engine crank case by the station attendant in the usual manner;

"Therefore, be it resolved that it is the opinion of the 23rd annual Conference on Weights and Measures these bottles are, in effect, measures and that they may be readily employed to deceive and to perpetrate fraud upon the customer; and be it further,

"Resolved, that the conference strongly disapproves these bottles and any others for use in dispensing oils which do not comply with the code."

A modification in the grease measuring device specifications presented by the committee on specifications and tolerances read:

3. Indication of Delivery

"All grease-measuring devices shall be so designed and constructed that the initial zero condition and the total amount delivered to an individual purchaser shall be clearly and definitely indicated in terms of liquid measure* by automatic means: Provided, however, that the capacity of the registering or tallying device demanded by the above shall not be required to be more than five pints: And provided further, that a device in use at the time these specifications take effect shall not be required to comply with the above requirement for automatic indication of the amount delivered when the device delivers, within the tolerances hereinafter provided, a unit quantity of a pint, a multiple of the pint, or a binary submultiple of the pint per stroke or per cycle of its operating elements, and when, in addition, the device is conspicuously and permanently marked to indicate the value of this unit quantity.

Postponement of the effective date of the specifications for grease-measuring devices was not accomplished without difference of opinion. A committee representing the American Petroleum Institute asked for postponement for a year on the ground there was now no place where the oil industry could procure a complete line of the equipment required to bring about the measuring of greases.

The committee was composed of Paul Hadlick, secretary of the institute's marketing committee; H. B. Malone and G. French of the Sinclair Refining Co.; A. E. Hutt and G. A. Round of the Vacuum Oil Co.; B. E. Baker, Standard of New York; L. C. Talliaferro, Q. L. Elgar and J. W. Saybolt, Standard of New Jersey; F. N. McDermott, Atlantic Refining Co.; Homer L. Morris, Sun Oil Co.; F. C. Kerns, The Texas Co.; Richard A. Wotowich, Cities Service Oil Co.; and D. V. Stroop, American Petroleum Institute.

"(*NOTE:—Devices which at the time of adoption of these regulations in any jurisdiction are marked to deliver in pounds rather than in pints and which in other respects conform to the retroactive sections of this code or are susceptible of being made so to conform, should not be condemned and confiscated on this ground alone, but the word 'pound' should be obliterated wherever it occurs and the word 'pint' substituted therefor. In this case the device should be readjusted if necessary.)"

Certificate of Gasoline Quality Required by Mississippi Law

CLEVELAND June 5

JOBBERS in Mississippi will be required to furnish retail outlets with certificates of the quality of gasoline and kerosene delivered under the new Mississippi inspection law which became effective June 1. The law also contains an anti-substitution section.

For tank car lots the manufacturer or distributor of gasoline shall supply his own certificate covering name of manufacturer, name of distributor, distillation percentages, sulfur content if over .10 per cent, and results of corrosion test.

In case of deliveries in less than tank car lots the manufacturer or distributor may supply the above certificate with an added paragraph showing that these specifications are good for a stated period, not exceeding one year. If a delivery of less than 60 gallons is made the certificate must be attached to the container or must be in possession of the retailer.

Similar information must be supplied in delivering kerosene. The kerosene specifications are the same as those set up by the U. S. government.

The retailer selling U. S. Motor gasoline is required by the law to erect a sign, a blackboard 24 by 36 inches, bearing the words "U. S. Government Motor Gasoline." The sign must be seen readily from the driver's seat of the customer's car. In case the retailer handles "special gasoline," a similar blackboard sign must be erected showing the words "Special Gasoline" and a copy of the certificate in full. The retailer may elect to omit the name of the manufacturer or distributor.

"Special gasoline" is defined as gasoline with a sulfur content of not more than .15 per cent, with reasonable limits of toleration and variation above or below U. S. government motor specifications. The toleration and variation shall be set by the state chemist and may be altered by him after notice is published once a week for three weeks in a newspaper.

The retailer is to have the certificates of gasoline on hand where they may be inspected by the Commissioner of Agriculture, and certificates shall be on file for one year. All tanks, barrels, pumps or other gasoline containers must contain or be marked with the words "U. S. Government Motor Gasoline" or "Special Gasoline."

In the anti-substitution section the retailer shall not sell gasoline, kerosene or lubricants from any container unless it is the brand or trade marked goods as indicated on the container.

In defining the distillation percentages of U. S. Motor gasoline the Mississippi law recognizes the range on the 10 per cent point. The maximum temperature at 10 per cent is 176 degrees, the minimum 122 degrees, and for each per cent distillation loss less than 4 per cent the minimum 10 per cent point shall be lowered 5.4 degrees.

The law provides that the state chemist at the Agricultural and Mechanical college shall analyze samples of motor fuel, lubricants and like products when directed by the Commissioner of Agriculture, Statistics and Immigration.

Skelly Oil Co. Plans Expansion Program

TULSA, June 7.—A two-year expansion program has been planned by the Skelly Oil Co. following sale of $12,000,000 of 6 per cent preferred stock. All branches of the company are expected to be included in the program.

At the company's refinery at El Dorado, Kan., a new lubricating oil plant is to be built. Other additions and improvements will be made at the plant. The company is considering also a 5000-barrel skimming and cracking plant in the Panhandle of Texas.

To enlarge the crude supply for its Kansas plant the company is planning to extend its pipeline system to a number of Kansas pools and possibly into Oklahoma.

In the marketing field the company expects to add some 400 or 500 new stations through purchase or building.

Gas acreage is to be expanded in the Texas Panhandle in connection with the company's interest in the proposed 900-mile line to Chicago.

1000 Gallons Per Month Takes 5c Discount in Chicago

CHICAGO, June 7

THE Standard Oil Co. of Indiana has revised its policy on quantity discount agreement on gasoline in Chicago. The maximum discount of 5 cents off the service station price is granted now on purchases of 1000 gallons or more a month. For the past four months this discount was given on purchases of 75,000 and 100,000 gallons a month.

A new schedule for the Chicago trade was put into effect June 3. The brackets are as follows, with the discount off the service station price:

Purchases of 500 to 999 gallons a month, 4 cents discount.

Purchases of 1000 gallons or more a month, 5 cents discount.

The quantity discount agreement schedule for the rest of the territory was unchanged. The schedule is published under the Standard of Indiana price table in the tankwagon market on page 124 of this issue.

Five years ago in July the Standard Oil Co. of Indiana established a posted quantity discount agreement, commonly termed the Q. D. A., for recognizing quantity purchases of gasoline off the tankwagon. The original agreement gave a discount on quantity purchases at service stations, but this schedule was discontinued several years ago, leaving only a Q. D. A. on tankwagon deliveries.

Recognition of the large quantity gasoline purchaser was seen in the recent series of Q. D. A. revisions starting in February, 1930. On Feb. 12 the Standard of Indiana added a top bracket of 4½ cents discount on purchases of 100,000 gallons of gasoline or more a month throughout its territory excepting Chicago. For Chicago the discount was 5 cents for 100,000 gallons or more. This revision was not announced to the trade.

Standard of Indiana told NATIONAL PETROLEUM NEWS that only four or five large consumers had gallonage sufficient to earn the maximum discount. One of these large consumers is the meat packers organization. Gasoline for the meat packers is paid through the central office in Chicago, and the local buyers in the Indiana Standard's 11 midwestern states arrange their purchases to be made from the Standard tankwagon so the maximum discount may be obtained through the central office. This arrangement was discussed at the Kansas Oil Men's Association convention in April.

Following the Standard of Indiana's Feb. 12 change the Sinclair Refining Co. on March 5 posted its own brackets for large purchases. Sinclair, for the Chicago trade, posted a discount of 4½ cents for 50,000 to 74,999 gallons and 5 cents for 75,000 gallons. Later in March, about the nineteenth or twentieth, Standard of Indiana partially met the Sinclair schedule, allowing a discount of 4½ cents for 75,000 gallons or more in the territory, and in Chicago 4½ cents for 75,000 gallons or more and 5 cents for 100,000 gallons or more a month.

The revision of June 3 might be considered the equivalent of a price reduction of 1 cent a gallon. The only retail price change by the Standard of Indiana so far this year was an increase of 1 cent in service station and tankwagon throughout its territory on April 12.

The basis price for gasoline in Chicago service station is 16 cents. Note that the Illinois 3 cent gasoline tax is not used in these computations. With the maximum discount the dealer would obtain his gasoline for 11 cents. U. S. Motor gasoline in the Chicago market was 6.50 cents this week, the freight from Group 3 is 2.38 cents a gallon, making the delivered price on a Group 3 basis about 9 cents. Thus the jobber works on the margin between 9 and 11 cents, and the dealer has the insured margin of 5 cents.

Chicago Q.D.A. Schedule

(Posted by Standard Oil Co. of Indiana)

The Old

(Effective March 19)

Over 500 gallons, 2 cents
Over 1000 gallons, 4 cents
Over 50,000 gallons, 4½ cents
Over 75,000 gallons, 5 cents

The New

(Effective June 3)

Over 500 gallons, 4 cents
Over 1000 gallons, 5 cents

The discount is given off the service station price, for these quantities purchased in a month.

Pump Company Official Dies

GRAND RAPIDS, Mich., June 10.—B. S. Klise, vice president of the Blackmer Pump Corp., died June 8 here of pneumonia. Funeral services are to be June 12 from the home of his father, A. B. Klise, Woodcliff Park, Grand Rapids. He is survived by a brother Elmer, living in California.

Texas Operators Working on Program To Cut Production Further

By Paul Wagner
N. P. N. STAFF WRITER

By Telegraph
HOUSTON, June 9

READJUSTMENT of production schedules in Texas oil fields is necessary, due to the increase in the state's crude oil output.

Texas production is now over 850,000 barrels daily average, the figure to which it was decided some months ago to hold the state's output under voluntary proration schedules.

A committee of six oil operators is now at work making a study of market demand for crude, and the possible output of various fields, at the request of the state railroad commission, which is called upon to administer the new pipeline law which becomes effective June 20.

The new pipeline law sponsored by the independent producers contains common purchaser and common storage features which some believe give the state authorities greater power in regulating crude production by proration or other means.

Additional efforts to curtail future production in the Hobbs district, of southeastern Lea County, New Mexico, are to be made by operators in that district.

The Humble Oil & Refining Co. announced that, effective July 1, it would withdraw as a purchaser of crude in the Wichita Falls and Panhandle districts of Texas, President W. S. Farish stating that purchases in these territories, in addition to its own production or what is covered by contracts, were not needed in its market requirements.

The withdrawal notice of the Humble created a storm of protest second only to that following its reduction in crude oil prices last January.

The Humble's purchases have amounted to about 5000 barrels daily in the Wichita Falls district and 11,000 barrels daily in the Panhandle.

Mr. Farish referred to his company's efforts to aid in prorating steps initiated by others in the Panhandle and said that the failure of curtailment there last spring had shown the disposition of operators to handle their own situation. With the Humble out of the territory as a purchaser it was suggested they would have an even freer hand.

Efforts to whittle down on crude runs in excess of the Humble's requirements had previously caused the company to announce that, beginning July 1, it would only take 50 per cent of the production from wells in the McCamey district of Upton County, West Texas, where total field production is now only 7700 barrels daily. The Humble also has been disconnecting from wells of the Prairie Oil & Gas Co. elsewhere in West Texas in its general shuffling of oil into reduced runs.

President J. S. Bridwell, of the Wichita Falls Chamber of Commerce, himself an individual oil producer, was among the first to be quoted on the Humble's latest announcement. Mr. Bridwell said in press dispatches, "They can't discriminate against this district that way." He indicated further that the Chamber of Commerce and the North Texas Oil & Gas Association would take up the problem at once.

Mr. Bridwell and John F. O'Donohoe, the latter a former president of the Texas division of the Mid-Continent Oil & Gas Association, were members of a fact-finding committee which last winter found the Humble's January price cut justified. They have also been supporters of permissive agreement legislation supported by the Humble in seeking curtailed development.

Another rumbling came from Big Spring, in Howard County, West Texas, where the first zone meeting of the Independent Petroleum Producers Association of Texas was held June 7. This organization, which sponsored the new pipeline statute that becomes effective in Texas June 20, adopted a resolution condemning the Humble's withdrawal from the Wichita Falls area.

David Donoghue, consulting geologist and engineer of Fort Worth.

.Charles L. Morgan, of Fort Worth, vice president and legal adviser of the association, said: "If the Humble move proves to have been made for the purpose of favoring some field where no competition with independents exists and where the Humble owns production this association is going to do something about it quickly."

Additional efforts to curtail future production in the Hobbs district of southeastern Lea County, New Mexico, were to be taken up at a meeting of operators, June 11. The seriousness of the situation was gone over at an earlier meeting in Dallas last week. It has been estimated that, without curtailment, the drilling under way and in prospect for this summer would bring daily average production to 75,000 barrels daily by October and 100,000 barrels daily by next January. Lea county production now approximates 18,500 barrels daily.

Under the New Mexico law prorating agreements are legal after approval by the state land commissioner and the state geologist. The main problem at present is said to be whether the Amerada Petroleum Corp., will insist on deliveries at the rate of 7500 barrels daily on its 3,000,000 barrel crude contract with the Atlantic Refining Co. This oil would move through the pipeline now under construction by the Atlantic from the Hobbs field to Midland, Texas, connection with its trunk system to the Gulf coast.

For the state generally, a special producers' committee of six is investigating conditions preliminary to making recommendations to the state railroad commission at Austin, which administers the state's conservation statutes.

This is the result of a request from the railroad commission to producers to recommend regulations for administration of the new pipeline law which becomes effective June 20, which provides against discriminations in crude runs as between both properties and fields producing similar grades of oil.

Equitable application of the statute, as the pipeline law contemplates, is construed as probably to effect statewide prorating of flush oil fields in

terms of production balancing with market demand. Attainment of such a balance would bring about a curtailment such as the operators previously have been unable to reach because of peculiarities of Texas anti-trust statutes.

Three meetings have now been held, two of general character at Dallas for organization of the work and a third at Houston to develop data for committee use.

It is contemplated that the committee shall develop from crude oil purchasers the quantity of their daily requirements; recommend a balanced production level for the state and suggest ways and means of attaining it.

If unified procedure can be agreed on, and state authorities find it legal under the peculiarities of Texas anti-trust laws, it is further contemplated that settled production fields shall be recognized for their normal yields and that areas of flush production shall be prorated under orders of the railroad commission.

The committee of six includes representation of three groups in the producing and transportation industry, namely, the Texas division of the Mid-Continent Oil & Gas Association; the Independent Petroleum Association of Texas; and the pipeline companies.

Representing the Mid-Continent Association's Texas division are Charles F. Roeser, one of the principals in the Independent firm of Roeser & Pendleton, Inc., Fort Worth, and Warner Clark, southern division manager of the California Co., subsidiary of the Standard Oil Co. of California, Dallas.

President Tom E. Cranfill of the Independent Petroleum Association appointed George Calvert of Broderick & Calvert, Fort Worth, and Rupert P. Ricker, San Angelo operator, to represent that organization.

The major interests are represented by A. M. Donaghue, head of The Texas Co.'s crude oil purchasing department and John R. Suman, director of the Humble Oil & Refining Co., both of Houston.

The position of technical adviser to the committee of six has been accepted by David Donoghue, consulting geologist and engineer, Fort Worth. Under the committee's present plans he will occupy a position equivalent to that of umpire for the Texas producing industry.

Mr. Donoghue will be assisted by a statistical committee composed of W. N. Finnegan, of Houston, representing the pipelines; H. J. Struth, of Houston, representing the Mid-Continent Oil & Gas Association, Texas division; and probably Floyd Dodson, San Angelo, representing the Independent Petroleum Association.

In conferences at Dallas. where the committee was brought into being, June 4, two policies that had previously involved controversies were recognized as dominating the present southwestern crude oil situation.

President Cranfill of the independents introduced a resolution pointing out the necessity for prorating of flush fields in Texas, which was adopted unanimously by the committee.

All importers were called upon to curtail their shipments into this country in a degree comparable with domestic crude oil reductions under prorating practice.

The Dallas meetings were called originally for discussion of a new pipeline law, which goes into effect in Texas, June 20, and which contains common purchaser and common storage features. Under that law the common purchaser provisions of the older statutes are more clearly defined as regards discrimination and companies electing to store oil for others are required to do so ratably.

In some quarters it has been suggested that the law automatically tightens the grip of prorating practice on the producing industry. No crude-receiving company may be required to hold oil for hire unless it elects to become a common storer, hence its market demand marks the maximum limit of quantities it may be required to take from given fields.

Apparently, the only effect of the new law under such specified conditions is to assure that "takings" from wells shall be ratable and that, under the law, discriminations in crude runs are impossible.

Members of the Independent Petroleum Association, who were responsible for the legislature passing the new pipeline statute, cited in their various meetings specific instances of what they regarded as discriminations by certain crude oil transporting companies.

Several interpretations of the common purchaser clause in the statute, involving some that might be found unworkable, are said to be possible. It is understood, however, that pipeline attorneys now have no intention of attacking the law if reasonable application is made of the rules.

A provision of the law which forbids discrimination as between fields is regarded by many as making statewide prorating certain, this phase of the statute perhaps permitting curtailment that the Texas anti-trust law would have previously prevented by agreement.

Vigilance Committee Of Lawyers Named

TULSA, June 7.—A study of the laws and court decisions which have a bearing upon the conservation and proration orders issued by the state of Oklahoma will be made immediately by a committee of attorneys appointed by President C. C. Herndon, of the Mid-Continent Oil & Gas Association, Oklahoma-Kansas division.

In announcing the appointment, the association said the committee will be "ready to operate in case any emergency should arise or any attempt should be made by any operator or group of operators to set aside or impair the force and effect of the existing order or those which may follow."

No trouble is now being experienced and no question has been raised as to the present order. That resort to court action may be necessary when town-lot promoters get production in the Oklahoma City field is seen as a possibility.

Wallace C. Franklin, of the Tidal Oil Co., is chairman. The other members are:

James A. Veasey, Carter Oil Co.; W. P. Z. German, Skelly Oil Co.; James W. Finley, Empire Companies; R. L. Gordon, Indian Territory Illuminating Oil Co.; T. J. Flannelly, Prairie Oil & Gas Co.; J. T. Dickerson, Shell Petroleum Corp.; Frank Burford, Burford, Hoffman & Miley; J. C. Denton, Mid-Continent Petroleum Corp.; P. J. Carey, Cromwell-Franklin Oil Co.; George Otey, Wirt Franklin Petroleum Corp. and Harry H. Smith, Mid-Continent Oil & Gas Association.

Court Denies City's Right To Regulate Drilling

By Telegraph

TULSA, June 10.—Drilling restrictions within the limits of Oklahoma City were temporarily removed Monday. The action came as a result of the decision of the District Court which held that the city was without authority to regulate operations. Judge T. G. Chambers ruled that the city board could issue no permits for drilling on small tracts and that in doing so it was assuming legislative rights it did not have.

This decision virtually opens the entire city to the oil operators and removes the possibility of orderly development. An immediate appeal is to be made to the state supreme court in an attempt to have the decision of the lower court set aside. Should this move fail of success the board will draft a new set of regulations tending toward unitization.

The legality of city regulations was questioned by the Plains Drilling Co., when its drilling permit within the city limits was refused. The city was restrained by injunction from interfering with the operations of the company. This move brought about a court test of the regulatory ordinances which resulted in the above decision.

Ghost of Sulfur in Gasoline Costs Americans 50 Millions a Year

By Gustav Egloff,* C. D. Lowry, Jr.,* and Paul Truesdell*

Article 1

FIFTY million dollars a year is a high price to pay for protection from a ghost.

Fifty millions a year is the estimated cost of treating American gasoline to bring it within the generally accepted specification that motor fuel must contain not more than 0.10 per cent sulfur.

The cost of this treating falls upon the refiner first, but, of course, in the long run comes out of the pockets of American motorists.

Is the motorist getting, in return for this huge sum, needed protection of his engine from the so-called demon of sulfur corrosion, or are those who speak for the public in such matters shivering at a phantom? Evidence is piling up which indicates that the danger is exceedingly shadowy.

That the 0.10 limit rests on opinion, rather than on proven facts, is indicated by the following statement of a man who is a member of the Federal Specifications Board and was a member at the time the present sulfur limit was adopted by the board.

His statement was made in answer to a question as to where the records of investigation on which the sulfur limit was based could be found.

He wrote:

"I believe there is no available written record of the deliberations of the Committee on Lubricants and Liquid Fuels (Federal Specifications Board) relative to the 0.10 per cent limit on sulfur.

"A considerable mass of evidence was developed, however, between 1923 and 1927, largely from tests run by the General Motors Corp. which indicated that serious crankcase corrosion difficulties were encountered with gasolines which contained between .15 and .2 per cent sulfur.

"Most of the data on which these conclusions were based have not been published because the conclusions were not of a nature which it seemed desirable to publish widely.

"It has been the definite *opinion* of the committee, however, that there could be no justification for liberalizing the sulfur requirement until such time as conclusive information could be obtained from independent and impartial sources indicating that it would be safe to raise the sulfur limit on gasolines."

Why should the data not be published? If the point on sulfur is well taken, why not bring forth the evidence to prove it and end the whole matter?

Up to date there has been no evidence published to prove the danger of high sulfur gasolines except a few laboratory tests.

The Case for a Higher Sulfur Limit

NATIONAL PETROLEUM NEWS herewith publishes the first of three articles by the Universal Oil Products Co., Chicago, pertaining to the practical value of the present sulfur limitation in motor gasoline.

These articles present the case for raising the sulfur limitation. Technical men with the Universal have consistently taken this position for some time and have gathered considerable data to uphold their contention which is presented in these articles.

Specifications laid down by the Federal Specifications Board become, legally or tacitly, the specifications of most of the states and hence standards of the trade in general. As a result of its action, the 0.10 per cent sulfur limitation has been imposed upon the refiners generally.

At the time of its adoption the specification could be complied with by most refiners without great difficulty. But changed conditions of crude production have made the meeting of the specifications by the refiner a cause of great expense, both in the cost of treating and the waste in gasoline. Moreover, change in engine design has removed whatever justification the low limit may ever have had. Yet efforts to bring about modification of the gasoline specification to permit a wider sulfur tolerance, are vigorously opposed.

Unless this sulfur specification is changed, the burden of meeting it is likely to become heavier year by year as increasing proportions of the nation's gasoline supply are derived from crudes of high sulfur content.

To determine whether, according to the experience of refiners, there was any need for the present strict sulfur limit, the authors of this paper prepared a questionnaire which was widely distributed in this country and abroad.

The following questions were asked:

1. What is the percentage of sulfur in the following oils in your refinery?
   a. Crude oil (from what field)?
   b. Straight run gasoline, before and after refining.
2. Has your company conducted any investigation on corrosion in motors? If so, will you be kind enough to give us an account of your experience, including the following information:
   a. The sulfur content and analysis of the motor fuel used.
   b. The place and time of year of the test.
   c. The atmospheric temperature prevailing during the test.
   d. The number and make of cars, the gasoline consumption and the mileage covered.
   e. In what condition were the motors at the start of the test?
   f. Was there any provision, such as crank case ventilation, for preventing condensation of water?
   g. Did water collect in the crankcase and to what extent?
   h. What evidences, if any, of corrosion were found?

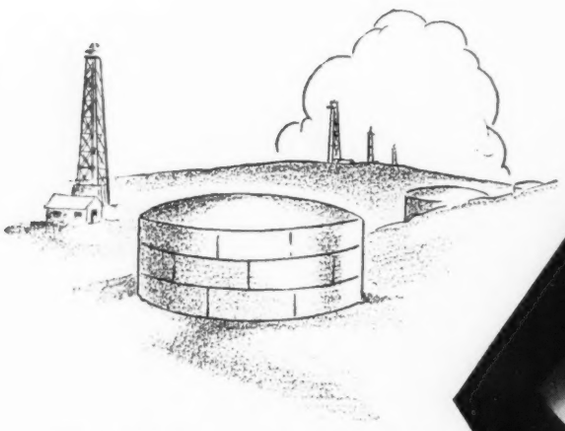
In addition, letters were written to a large number of prominent fuel technologists in foreign countries, making inquiries in regard to:

1. Any specification proposed or in effect in foreign countries with reference to sulfur in gasoline.
2. The sulfur content of motor fuels on the market.
3. The approximate amounts sold annually of fuels containing more than 0.10 per cent of sulfur.
4. Experience in operation of motors on high sulfur fuel and any known cases of motor corrosion traceable to use of such fuel.

The widespread response to the questionnaire, both by American and Europeans, showed keen interest in this problem.

*Universal Oil Products Company, Chicago.

Read how *perfectly* this vent valve SAFEGUARDS Storage Tanks



Cut-out view of the Wheaton Vent Valve for Storage Tanks. This valve, like all Wheaton Products, is made of special-analysis, non-corrosive bronze — tempered, toughened and tested to assure long life.

The Wheaton Vent Valve for Storage Tanks provides the *perfect admission and expulsion of air*—essential to real *safety.*

Look at the cut-out view at the right. Observe how *precisely* the two valves fit into their seats. These seats are *ground*—they are absolutely *airtight* when shut and enable the valve to open the *instant* air-pressure is applied.

As oil is drawn off, air flows into the tank through the upper valve. This permits quick emptying, and prevents vacuum and external pressure on the tank walls. As oil is pumped into the tank, air and gases are expelled through the lower valve—which permits quick filling, and prevents compression within the tank.

Observe how the two ports are joined to the vent. Across each of these ports is screwed a wire screen, which, in case of fire near the tank, prevents the flame entering through the vent.

Send today for a sample of the Wheaton Vent Valve. Give it a 30 or 60 days' test. If you are not entirely satisfied, return it for credit or refund.

A. W. WHEATON BRASS WORKS
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With very few exceptions the answers were in favor of raising the sulfur limit. This point of view was backed up by a wealth of experience tending to show that increase of the sulfur limit would not cause corrosion of automobile engines.

Only a few of those who answered the questionnaire opposed raising the sulfur limit. Moreover, these simply gave opinions, and did not present any conclusive evidence to support their views.

The seriousness of the sulfur problem is shown in the following tables, which have been compiled from the reports of refiners as to the sulfur content of their various crudes, and products made therefrom.

Table 1 shows, by fields, the sulfur content of the crudes processed and the sulfur content of straight run gasoline prepared therefrom. The blanks in the table result from the failure of some refiners to furnish gasoline data for each field from which they drew their crudes.

The tables clearly show that the sulfur problem, from a refining standpoint, is strictly localized. In many fields, particularly Eastern and Mid-Continent, the sulfur content of crudes is so low that no difficulty is encountered in preparing gasoline to meet the present sulfur limit. In Texas and California, however, high sulfur crudes offered some difficulty in the preparation of low sulfur straight run gasoline. In a number of cases cited above, the sulfur content of untreated motor fuel runs over 0.10 per cent, and only by an expensive and wasteful refining process can it be lowered to this limit.

Table 1
Sulfur Content of Crude Oils

Source	Sulfur content, per cent: Crude	Gasoline: before treating	Gasoline: after treating
Pennsylvania			
Eureka	.12	.032	.022
Milltown	.14	.030	.022
Mixed	.08	.....	.033
Ohio			
Lima	.75	.17	.075
Buckeye	.10	.02	.019
Kentucky			
Eastern Ky.	.12	.....	.05
Somerset	.26	.078	.05
Iowa			
Haynesville	.80	.035	.02
Kansas			
Elbing	.35	.05	.05
Hutchinson Co.	.07	.03	.02
Mixed	.36	.16	.09
Arkansas			
Lisbon	1.00	.05	.04
Oklahoma			
Roberson-Fox	.80	.....	.08
Hewitt	.94	.08	.....
Burbank	.24	.03	.02
Seminole	.36	.03	.02
Healdton	.79	.....	.08
Colorado			
Florence	.45	.02	.01
Fort Collins	.29	.01	.01
Wyoming			
Lost Soldier	.19	.03	.03
Hamilton Dome	.03	.....	.02
Big Muddy	.25	.....	.02
Other Wyoming fields run from a trace to 3.5 per cent sulfur.			
New Mexico			
Rattlesnake	.02	.....	.02
Texas			
Ranger	.27	.03	.03
Mexia	.25	.02	.02
Pampa	.44	.08	.05
Crane-Lipton	2.04	.25	.09
Reagan	.50	.14	.05
Spindletop	.22	.08	.07
Winkler	1.30	.28	.07
Luling	.48	.05	.03
California			
Midway	.5-.75	.....	.....
Ventura	1.0	.....	.....
Huntington Beach—over	1.0	.....	.....
Culver City	1.5	.20	under .1
Inglewood	1.5	.....	.....
Signal Hill	.70	.....	.....
Santa Fe Springs	.45	.....	.....
Huntington Beach	1.41	.....	.....
Torrence - Renando	2.37	.....	.....
Dominguez	.87	.....	.....
Inglewood	1.66	.....	.....
Montebello	.76	.....	.....
Brea-Olinda	.63	.....	.....
Ventura	.96	.....	.....
Seal Beach-Alamitos	1.05	.....	.....
Coalinga	.63	.....	.....
Venezuela			
La Rosa	2.08	.16	.07
Ecuadorian	.10	.02	.02

Table 2
Sulfur Content of Cracking Stock and Cracked Gasoline

Charging Stock	Sulfur content in per cent of: Crude	Pressure Distillate	Gasoline: Before Treating	Gasoline: After Treating
Pennsylvania Gas Oil	.02	.01	.01	.01
E. Kentucky Fuel Oil	.02	.05	.....	.05
Kansas City Oil	.14	.24	.19	.10
Elbing Gas Oil	.60	.1	.03	.04
Wyoming				
Lost Soldier Topped Crude	.26	.12	.03	.03
Oklahoma				
Garber, Tankawa, Seminole Gas Oil	.29	.03	.....	.02
Healdton	.80	.30	....	.10
Healdton Topped Crude	1.25	.34	.15	.12
Seminole Topped Crude	.70	.15	.08	.08
Robertson-Fox Gas Oil	.56	.....	.....	.08
Robertson-Fox Gas Oil Topped Crude	.75-1.6	.11	....	....
Hewitt	.70	.....	.31	.23

Source	Crude	Pressure Distillate	Gasoline: Before Treating	Gasoline: After Treating
Texas				
N. Texas Gas Oil	.36	.15	.07	.07
W. Texas Fuel Oil	2.00-2.50	.7	.....	.15-.18
W. Texas Gas Oil	.70	.....	.....	.12
Winkler Residue	2.06	.38	.38	.13
Luling Gas Oil	.38	.10	.09	.06
California				
Signal Hill Residual Oil	1.27	.66	.60	.31
Ventura Residual Oil	1.31	.76	.63	.40
Mixtures				
Midcontinent Gas Oil	.40	.09	....	.04
Midcontinent Fuel Oil	1.7	.....	.....	.02
North Texas and Oklahoma				
Gas Oil	.33	.49	.07	.03
Fuel Oil	.38	.....	.....	.....

The refining of cracked gasolines to 0.10 per cent sulfur, as Table 2 shows, is still more difficult. Table 2 gives sulfur contents of charging stocks and gasolines from a wide variety of crude oils.

It is evident from these figures that the desulfurization of cracked gasolines is a more serious problem than the treatment of the straight run product. While in certain districts the low sulfur crudes there produced give no difficulty, there are many regions of high production, notably California, Texas, and Oklahoma, whose cracking stocks run to and over one per cent sulfur, and which give cracked gasolines whose refining to 0.10 per cent sulfur or less is a matter of serious difficulty involving great economic loss, and depreciation in gasoline quality.

In the case of one large refining company, the cost of treating to meet the 0.10 per cent sulfur specification runs to 42 cents a barrel of cracked distillate, or more than 1 cent a gallon of finished gasoline.

Further information obtained through this questionnaire from sources throughout the world will be presented in a succeeding paper. The data available at this time supports the following conclusions:

1—No work has ever been published conclusively showing damage to automobile engines in actual use on the road from motor fuel containing more than 0.10 per cent sulfur.

2—The supposition that such motor fuels do cause corrosion is based entirely on a few laboratory tests carried out at below freezing temperatures. The investigators who did the work and reported corrosion of wrist pins in their tests expressed the opinion that corrosion from sulfur would not be a menace if all cars were equipped with crankcase ventilators which would prevent the condensation of moisture in the crankcase.

These investigators, and all others who put themselves on record, have had little or no fear of corrosion when operating motors at temperatures above freezing.

3—Over 70 per cent of the gasoline used in this country is burned when the atmospheric temperatures are well above 32 F. and can therefore cause no corrosion.

4—A large and increasing number of the new cars coming out are equipped with crankcase ventilators.

5—Millions of gallons of gasoline are now being marketed in various parts of the United States, which contain 0.30 per cent sulfur, more or less, without any complaint of corrosion of engine parts.

6—Road tests of considerable extent, carried out by competent investigators with high sulfur fuels under severe operating conditions have shown not a trace of corrosion.

7—No European country has any general sulfur limit in its specifications for motor fuel either for automobiles or for aviation. So far as can be learned by questioning outstanding oil technologists in European countries, corrosion of automotive engines from sulfur in the fuel is practically unknown.

Judkins Area, Producing 16,000 Bbls. Daily, Fails in Flush Caliber

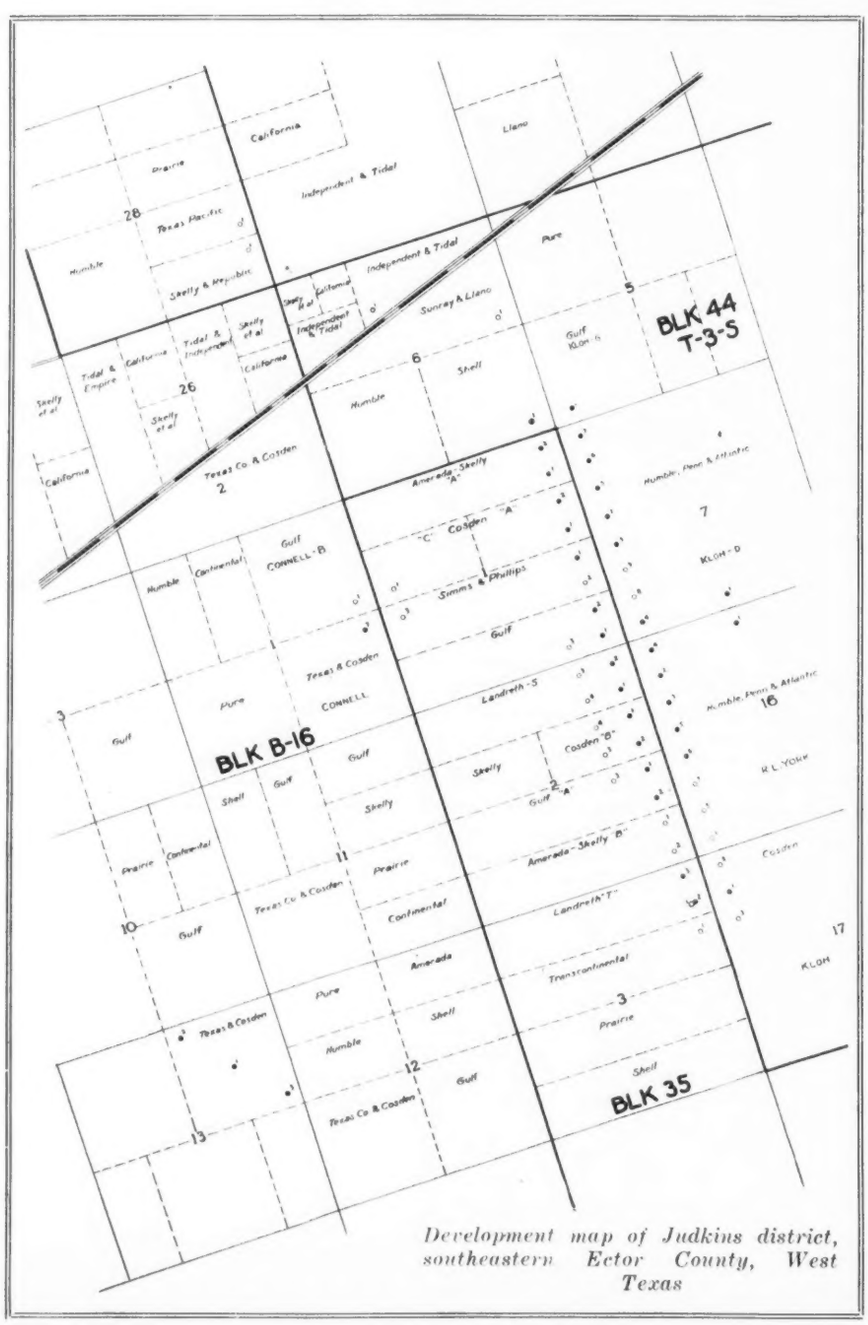
CRUDE oil production of approximately 16,000 barrels daily from 30 completed wells in the Judkins area of southeastern Ector county, West Texas, is falling short of original expectations.

When development of the non-prorated Judkins area got under headway early in the present year it was believed a potential production reaching, or exceeding, 50,000 barrels daily would be attained by midsummer.

By Paul Wagner
N. P. N. STAFF WRITER

A survey of field records shows that 50 per cent of the 30 wells under exploitation have been "shot" with 100 to 300 quarts of nitro-glycerin to gain the present average yield of approximately 530 barrels per well per day.

Additional wells, either in course of completion or which have declined to low production levels, are to be "shot," including the No. 7 Connell of The Texas Co.-Cosden partnership, a current extension one mile northwest from main production in University block 35. At total depth of 3565 feet. The Texas-Cosden well made 107 barrels, initial production, flowing natural.



Development map of Judkins district, southeastern Ector County, West Texas

Shot records show the largest quantities of nitro-glycerin used in wells of the Gulf, Texas Pacific and Independent-Tidal partnership, in the north end of the field, and by the Humble-Penn-Atlantic partnership on the east side of the development area. There have been virtually no "shots" made on the University leaseholds of the Cosden Simms-Phillips and Landreth companies in University Block 35.

Generally speaking, the University land wells have been the richest completed since the discovery was drilled by the Penn Oil Co., of Dallas, in partnership with Atlantic Oil Producing Co., on acreage obtained from Humble Oil & Refining Co., for the test. Humble, which owns two-thirds of the working interest in the Kloh and York acreage on the east side of the field, took over operations after the discovery was made.

Judkins district operations lagged in the beginning, because of the curtailment efforts of operators, especially the Humble and Landreth companies, who undertook to hold drilling to a minimum. This was not possible, however, in the face of land divisions made by the University of Texas board of regents in selling Block 35 leaseholds.

Reference to an accompanying development map of the Judkins district will disclose the oblong character of 40-acre and 80-acre tracts into which the University lands were split. The situation was aggravated further by a statute requiring the progressive drilling of each additional location on University property whenever a well is completed within 500 feet of that location site. This has meant steady development in the Block 35 area and along its east line, where the Humble Penn-Atlantic interests were also forced competitive drilling.

Completions near the northwest corner of the University block will call for progressive development in the last mentioned land division, thereby forcing every productive location inside that area as time proceeds.

The No. 7 current completion of The Texas Co., and Cosden in the northeast corner of the southeast quarter of Sec. 1, Block B-16, is the first important well finished on the Connell ranch since the drilling of three

small producers in Sec. 13, several years ago.

Original Connell wells, which preceded the Block 44 and Block 35 development of the Judkins area, were hardly of commercial proportions. The best of the three making only 38 barrels, initial production. The first wells of the group were drilled by the Cosden interests, then operating as J. S. Cosden, Inc., who sold an operating half interest in the property to The Texas Co.

Unfinished tests were completed and other unsuccessful operations (off map) were pursued in the general territory to the west and northwest. It was not until last winter that the Penn discovery was made two and a half miles northeast of the original Cosden wells, that real development got under way.

The Present Ector county development, in common with other producing areas of the Permian salt basin region, differs from other West Texas fields only in the depth to the lime producing horizon. As may be seen from the accompanying compilation of field statistics, the pay horizon ranges generally from 3600-3700 feet, with minor variations, conforming to surface elevations. This comparative depth, in contrast with 2800-foot production at Big Lake, 2200 feet at McCamey and various pay levels elsewhere, reflects the Judkins district's more central position in the Salt basin.

Tabloid Data, Judkins District Wells, Ector County, Texas

Company	Location	Elev., Feet	Top Salt, Feet	Top Lime, Feet	Pay, Feet	Total Depth, Feet	Shot Level, Feet	Initial Prod., Bbls.	Daily Prod., Bbls., 6-1-1930
Humble-Penn-Atlantic Partnership									
York 1	Sec. 16, Blk. 44	2921	1245	3430	3755-3771	3785	....	495	190
York 2	Sec. 16, Blk. 44	2902	1115	3130(b)	3614	3780	3599-3693	382	98
York 3	Sec. 16, Blk. 44	2898	1190	3325	3668	3785	3651-3710	469	319
York 4	Sec. 16, Blk. 44	2903	1175	....	3605	3710	....	731	10
York 5	Sec. 16, Blk. 44	2892	1150	....	3634	3730	....	814	751
York 6	Sec. 16, Blk. 44	2889	1155	....	3640	3746	3666-3716	386	206
York 7	Sec. 16, Blk. 44	2886	1190	....	....	....	....	....	....
York 8	Sec. 16, Blk. 44	2883	1170	....	....	....	....	....	....
York 9	Sec. 16, Blk. 44	2880	....	....	....	....	....	....	....
Kloh D-1	Sec. 7, Blk. 44	2925	1230	3410	3715-3725 3738-3744	3744	....	368	57
Kloh D-2	Sec. 7, Blk. 44	2921	1050	3175(b)	3645	3730	....	784	1436
Kloh D-3	Sec. 7, Blk. 44	2916	1055	3150(b)	3645	3702	....	558	473
Kloh D-4	Sec. 7, Blk. 44	2905	1060	....	3615	3710	3620-3710	612	381
Kloh D-5	Sec. 7, Blk. 44	2926	1060	....	3678	3726	3677-3726	391	391
Kloh D-6	Sec. 7, Blk. 44	2929	1075	3190(b)	3658	3759	3659-3734	1024	629
Kloh D-7	Sec. 7, Blk. 44	2932	....	....	3709	3780	3710-3780	103	....
Kloh D-8	Sec. 7, Blk. 44	2907	....	....	....	....	....	....	....
Kloh D-9	Sec. 7, Blk. 44	2912	1080	....	....	....	....	....	....
Gulf Production Co.									
Kloh G-1	Sec. 5, Blk. 44	2935	1105	....	....	3760	3696-3755	300	182
University 1	Sec. 1, Blk. 35	2899	925	3095(b)	3575-3590	3710	...	2327	2287
University 2	Sec. 1, Blk. 35	2905	....	3290	-3605	....	....	....	....
University 3	Sec. 1, Blk. 35	2897	1000	....	....	....	....	175	607
University A-1	Sec. 2, Blk. 35	2884	....	....	3670	3755	....	750	....
University A-2	Sec. 2, Blk. 35	2882	....	3165(b)	....	3700	3631-3695	....	....
University A-3	Sec. 2, Blk. 35	2881	....	....	....	....	....	....	....
Connell B-1	Sec. 1, Blk. B-15	2898	905	....	....	....	....	....	....
Independent Oil & Gas Co., and Tidal Oil Co. of Texas									
No. 1	Sec. 6, Blk. 44	2924	1020	3336	3695-3700 3735-3740	3800	3690-3750	....	Oil in hole
Cosden Oil Co., Inc.									
Kloh 1	Sec. 17, Blk. 44	2874	....	....	3652	3722	3652-3722	1052	817
Kloh 2	Sec. 17, Blk. 44	2877	1255	....	....	....	....	....	....
Kloh 3	Sec. 17, Blk. 44	2876	....	....	....	....	....	....	....
University A-1	Sec. 1, Blk. 35	2914	1055	....	3596	3760	....	1085	1286
University A-2	Sec. 1, Blk. 35	2891	1045	....	3620	3700	....	958	....
University B-1	Sec. 2, Blk. 35	2890	1095	3105(b)	3586	3678	....	1707	1414
University B-2	Sec. 2, Blk. 35	2888	1075	3125(b)	....	....	....	....	....
University B-3	Sec. 2, Blk. 35	2884	915	....	....	....	....	....	....
University C-1	Sec. 1, Blk. 35	2897	....	....	....	....	....	....	....
The Texas Co., and Cosden									
Connell 1	Sec. 13, Blk. B-16	2850	870	3235	3465	4002	....	38	
Connell 2	Sec. 13, Blk. B-16	2846	902	3177	3495	3515	....	35	Old Wells
Connell 3	Sec. 13, Blk. B-16	2848	863	3183	3465	3545	....	2	
Connell 7	Sec. 1, Blk. B-16	2894	903	3195	....	3665	....	107	107
Texas Pacific Coal & Oil Co.									
No. 1	Sec. 28, Blk. 45	2935	1009	3455	3750-3765	3863	3720-3775	45	Incomplete
Skelly Oil Co., and Republic Production Co.									
McKenzie 1	Sec. 28, Blk. 45	2932	....	....	....	....	....	....	....
Amerada Petroleum Corp., and Skelly.									
University A-1	Sec. 1, Blk. 35	2925	1060	3320	3610	3722	3624-3711	620	428
University A-2	Sec. 1, Blk. 35	2928	1075	....	....	....	....	....	601
University B-1	Sec. 2, Blk. 35	2879	1187	....	....	....	....	....	....
University B-2	Sec. 2, Blk. 35	2875	1160	....	....	....	....	....	....
Sunray Oil Co., and Llano Oil Co.									
Jones 1	Sec. 6, Blk. 44	....	1100	....	....	....	....	....	....
Transcontinental Oil Co.									
University 1	Sec. 3, Blk. 35	2871	1140	....	....	....	....	....	....
Shell Petroleum Corp.									
No. 1	Sec. 6, Blk. 44	2928	1070	3350	3615-3620 3663-3675	3760	3657-3705	856	454
Landreth Production Co.									
University S-1	Sec. 2, Blk. 35	2894	1080	3115(b)	3598	3720	....	840	443
University S-2	Sec. 2, Blk. 35	2897	1210	3290	....	....	....	....	800
University S-3	Sec. 2, Blk. 35	2894	962	....	....	....	....	....	....
University S-4	Sec. 2, Blk. 35	....	938	....	....	....	....	....	....
University T-1	Sec. 3, Blk. 35	2871	....	....	3135-3138	....	....	5 million gas	....
University T-2	Sec. 3, Blk. 35	2872	1210	3250	3588	....	....	565	436
University T-3	Sec. 3, Blk. 35	2875	....	3110(b)	....	....	3574-3679	105	....
Simms Oil Co., and Phillips Petroleum Co.									
University 1	Sec. 1, Blk. 35	2914	1070	....	3620	3670	....	770	1110
University 2	Sec. 1, Blk. 35	2909	1035	3110(b)	....	....	....	....	....
University 3	Sec. 1, Blk. 35	....	....	....	....	....	....	....	....

(b)—brown lime.

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Town Lot Drilling at Oklahoma City Reaches the Frantic Stage

By William F. Lowe
N. P. N. STAFF WRITER

TULSA, June 7

FOR the past week just about all of the interesting production news has come out of Oklahoma City. Elsewhere in the state, as in Kansas, there has been considerable activity but no exciting results. The Asher-Wanette area of Pottawatomie county, Okla., proved itself up to expectations though no new wells were brought in. In the Seminole area most of the work and completions were of routine nature, with no important developments.

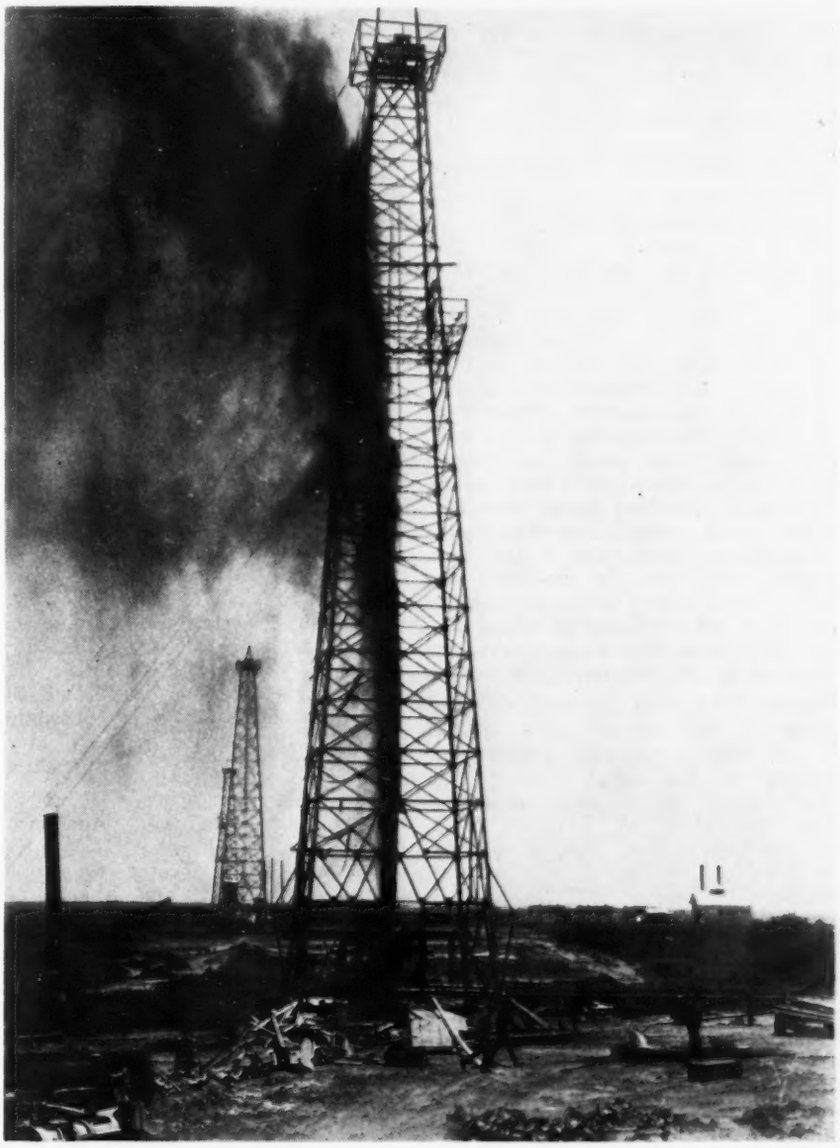
The Ritz pool in McPherson county, Kansas, seems to have a two-mile extension. This pool and the Voshell area in the same county, are the largest flush pools in the state, having a combined flush potential of 55,000 barrels per day. The former has 11 wells with a total of 9000 barrels and the latter 46,000 barrels from 66 wells. Both are being prorated, however, the Ritz to but 50 per cent of its capacity and Voshell to the pipe line capacity of 21,000 barrels.

The biggest piece of news for Kansas is the projected pipe line of the Skelly Oil Co., to serve the producing areas in the western part of the state. This line is reported to consist, tentatively, of 25 miles of 8-inch line and 15 miles of 6-inch line. It is to run from the Skelly refinery at El Dorado to the Voshell and Ritz pools of McPherson county. If the project is carried farther it is probable that it will also include the Raymond pool of Rice county.

In the Texas Panhandle things began moving with a speed suggestive of some of the old days. Expiring leases were the cause, however, though some of the 51 first reports of the week may result in the discovery of new producing areas. Gray county got 37 of these, Wheeler county seven, Hutchinson county four and Carson county two. Daily average production figures were off about 1000 barrels though the figure for the past seven days of 111,141 barrels, indicates that there is still plenty of oil in the region. If the Humble Oil & Refining Co., refuses to buy oil there as it has in the Wichita falls area, some of the producers are going to have to find addresses for their oil.

At Oklahoma City everything is in a jumble. The town lot drilling has everybody so excited that just anything may happen. Every property owner within the potential production zone is petitioning for the right to drill whether they use it or not. Already the city council is contemplating increasing the size of the permit zone to include areas where drilling had formerly been prohibited. Further drilling restrictions are being formulated and rules of conduct seem to be next for the operators.

A well to the acre, or at most, one well to two acres is to be a more or less common procedure unless community leases come into vogue. The city fathers insist that not more than one well be drilled to the city block though the provisions to force division seem rather vague. There are several instances where wells are within 75 feet of each other and



The Indian Territory Illuminating Oil Co., No. 2 Community, 1-11-3W, cleaning out. It was estimated as good for 12,000 barrels and sprayed the country. This method of blowing wells is to be discouraged in the city limits though a substitute method has not yet been discovered

Close drilling at Oklahoma City. On the right the Indian Territory Illuminating Oil Co., No. 1 and 73 feet away is the Jones Bros. No. 1, both in 1-11-3W. The latter lost circulation at 4660 and found its rotary mud coming up in the well across the road.

there is reason to believe that there will be more.

An illustration of what this close drilling can result in is found in the experience of two operators in 1-11-3W. Here, the Jones Bros. No. 1, E½ E½ SW NW SW, and the Indian Territory Illuminating Oil Co., No. 1, SE NW SE, drilling but 73 feet apart, came very near to crossing holes. At 4464 the former lost circulation with the rotary mud and found that it was coming up in the latter's hole. Both wells shut down temporarily. It was found that the I.T.I.O. could proceed but that Jones could not, at least that is the way matters stood at the end of the week. There seems to be a question now as to who lost the hole and the legal aspects of the case, if any, are going to be interesting.

Another complicating phase of producing in the settled area within the city limits, is the matter of bringing in the great wells. The usual custom is to allow them to clean themselves by blowing them over the derrick. If this is done in the area on the north end of the field, a fire hazard will be created that will have few equals. Already the business district has been slightly sprayed by wells considerably further away. Wells are now drilling within a little over a mile of the leading hotels and the noise of the slush pumps is audible on Main Street.

It has been suggested that the wells be blown out to the side instead of high into the air. As far as the oil is concerned this is a noble idea. But the gas has a habit of clinging to the ground temporarily and the further it goes the more explosive it becomes. It seems as if the decision as to method should be left to the residents of the neighborhood. Their preference as to whether they want their homes painted with oil or blown up with gas should be the determining factor.

There were 30 new locations made in the Oklahoma City pool during the past week and all but three of these are in the congested area on the north. Many of them are inside the city limits. When they all come on production, if they do, there will then be the little matter of getting their oil to a market. It is understood that the railroads have agreed to take no more oil from the townsite area. Though the Sinclair Pipe Line Co., is doubling its 10-inch line into the field, there is no possibility of the runs being increased above the proration figures for some time.

The most interesting well at Oklahoma City was the Magnolia & Ramsey No. 1 Johnson, NE NE SW, 35-11-3W. It is located four miles north of the city and almost two miles east of the town of Britton. At a total depth of 6508 the well encountered a small show of oil and caused no end of excitement. It is thought, however, that the oil is coming from the Hunton and it has not yet developed beyond the color stage.

In the Asher-Wanette area of Pottawatomie county, Okla., the three producing wells, two of which were but recently completed, are to be prorated. The gauge taken on them this week indicates that they represent the beginnings of a real pool. Their total for a 24 hour test was 4767 barrels.

The Ritz pool of McPherson county, Kansas, may have a two-mile extension to the north if the McBride Inc., No. 1 Wainright, NE NE SW, 30-19-1W, makes good its promise. The Chat was topped at 2947 and at a total depth of 2978 the well began spraying oil with 3,000,000 cubic feet of gas. It has since been shut in to await the erection of tanks before drilling is continued.

Magnolia Pipe Line Runs In March and April

HOUSTON, June 5.—Magnolia Petroleum Company, pipeline department, announces from Dallas headquarters the following crude oil runs for April, which are shown in comparison with March.

	March	April
Augusta	32,913.77	31,785.82
Oklahoma City	310,737.98	403,564.74
Bright Stock	88,159.21	.....
Bright Stock (Wewoka)	.....	114,067.84
Wewoka	552,517.08	507,738.57
Duncan	35,722.21	35,754.02
Seminole	34,093.02	31,338.79
Cushing	93,720.34	194,118.90
Healdton	196,800.45	173,347.74
Hewitt-Graham	150,837.49	144,902.30
Walters-Beaver Creek	7,002.77	7,167.80
Yale	38,878.42	38,565.69
Total Kans.-Okla.	1,541,382.74	1,682,352.21
Archer	20,783.45	19,997.92
Burkburnett	60,692.32	58,174.63
Commanche	14,660.95	16,091.45
Electra	74,253.07	122,932.53
Corsicana—Heavy	8,664.66	8,495.38
Corsicana—Light	10,674.54	12,134.51
Henrietta	1,485.21	1,502.01
Iatan	11,719.20	13,233.85
Luling	274,081.42	260,817.83
Lytton Springs	32,473.60	36,945.48
Mexia-Wortham	18,938.39	17,097.69
Mirando	185,970.51	.....
Mirando—Heavy	.....	181,912.35
Mirando—Light	.....	3,060.24
Olden	7,191.54	7,700.94
Panhandle	263,570.82	222,787.53
Panola	1,542.88	693.17
Stephens	7,415.09	8,148.96
Thrall	1,311.43	1,069.82
Crane-Upton	79,247.54	86,049.60
Glasscock	42,728.05	42,038.05
Darst Creek	112,609.38	217,802.01
Shelby	312.32	.....
Winkler	50,363.09	35,126.75
Total Texas	1,280,689.46	1,373,812.70
Hackberry	.....	13,354.20
Haynesville	5,924.04	5,817.51
Bull Bayou	32,507.16	32,699.44
Cotton Valley	22,839.92	28,634.92
Pine Island	25,560.18	21,635.33
Total Louisiana	86,831.30	102,141.40
East El Dorado	2,934.88	3,446.49
Smackover	60,273.80	57,354.78
El Dorado—Rainbow	42,979.01	42,456.36
Total Arkansas	106,187.69	103,257.63
GRAND TOTAL	3,015,091.19	3,261,563.94

OKLAHOMA—KANSAS

Report for April		Dly. Avg.
Runs	2,022,755.00	67,426.00
Shipments	2,365,120.00	78,837.00
Total Stock	6,764,079.00	.....

TEXAS

Wichita, Wilbarger, Archer Runs	221,601.00	7,387.00
Shipments	241,281.00	8,043.00
Petrolia, Runs	1,502.00	50.00
Shipments	1,502.00	50.00
Eastland, Stephens, Runs	31,941.00	1,065.00
Shipments	.....	.....

TOTAL STOCK, 247,134.00—North Central Texas Field.

ONE is compelled to wonder just what has happened to business. The reports certainly are not reassuring. The thing that is affecting general business affects the oil business. There is a liberal element of psychology involved in the situation. The collapse in the stock market cannot be blamed for it all. Indeed, that assault last October on the prices of securities reflected, rather than led, the business situation.

There was, for several years, a period of disorderly buying. There is now disorderly refraining from buying. It is quite peculiar. The writer has talked with men who, he knows pretty accurately, were not especially damaged by the stock market. The securities they had were depreciated, it is true, but only about to the price that had been paid for them.

These men own the securities and have them locked up. Their incomes have not been reduced. Yet they talk about the hard times and they speak heroically of getting along without a new car, a new suit or maybe a new screen door for the kitchen.

Now, their condition is not one bit changed from what it was a year ago when they were buying whatever they felt they could afford—or maybe a little more. If someone could give them assurance that business was suddenly much better over the country, they would lose no time calling up the auto dealer.

It is true that there is general unemployment. And why? Because the timidity on the part of those who can buy has reduced sharply the manufacture of goods.

There is no virtue in miserliness just as there is no virtue in improvidence.

* * *

Once each year the Mid-Continent section of the American Institute of Mining & Metallurgical Engineers holds, in Tulsa, a meeting which is quite informal. This year it was styled as "Reminiscence Meeting." Following a dinner, various geologists and engineers told of how things were done in the good old horse and buggy days.

One of the most interesting of the talks was that of Lee C. Moore, who founded the large derrick manufacturing company which bears his name. Mr. Moore is one of those pioneers who just can't stop working. He gave up formal office hours and close attention to business several years ago and devoted himself to golf. He said the other night that he couldn't stand golf as an occupation, so he has fitted up a laboratory and puts in 15 to 20 hours each week testing steel. Many of his friends bring equipment problems to him. Mr. Moore is 75 years old. He doesn't look his age by 15 years.

* * *

A few days ago, in front of the county court house in Tulsa, there was sold at public outcry 5080 shares of stock which were among the effects of a prominent oil man, dead these years. He left a considerable estate of gilt-edge stuff, but he bought pretty heavily of the poor stuff also. The whole lot offered brought a trifle more than $300. Doubtless this man was not deeply impressed by the salesmanship of the promoters who sold him the stock. In many instances, looking at the shares that now have no value, he was trying to encourage a little, local company to establish itself.

There was a little of everything in the lot. A tire company that never made many tires, a motion picture concern that "shot" a few hundred feet of film and quit, oil royalty companies, lead and zinc companies, a hotel company—these are some of the things for which he spent many thousand dollars. Most men of wealth "fall" for these things regularly. There is no moral to the tale, except that possession of such stock doesn't always indicate gullibility.

* * *

W. L. Connelly, vice-president of the Sinclair Consolidated Oil Corp., was in Tulsa last week long enough to call us by telephone and say howdy. He is leading a life as busy as that of the legendary paper-hanger with one arm and the hives. Venezuela, Mexico and Africa all claim his attention.

* * *

B. E. Blankenship, assistant to the sales manager of the Tide Water Oil Sales Corp., has returned to his post of duty following a severe illness. Mr. and Mrs. Blankenship left Tulsa the middle of April for New York City, going to Texas City and by Tide Water tanker from there. Upon his return he was confined to his home for more than two weeks.

* * *

N. M. Muir, petroleum engineer, is now in charge of the Tulsa offices of the General Refractories Co.

* * *

James G. Cloud, former president of the Operators Oil Co., has gone to Germany to make an investigation of oil conditions. The Operators company was recently acquired by the Sunray Oil Corp.

* * *

C. C. Clark is now district land man for the Louisiana Gas & Fuel Co., Shreveport. He was for 10 years with the Shell company in that district.

* * *

Hugh Crawford, city engineer of Ponca City, has resigned to join the civil engineering department of the Phillips Petroleum Co.

* * *

Recent changes in the Signal Oil & Gas Co. include the election of H. W. March, formerly secretary and treasurer, to a vice-presidency; R. H. Green, director, as vice-president in charge of production and C. Lav. Larzerle, general counsel, as secretary. Mr. March retains the position of treasurer.

* * *

A co-operative field trip of the Kansas Geological Society and the Rocky Mountain Association of Petroleum Geologists will be started this year the first of September. It begins at Colorado Springs and ends the same week at Amarillo. Southeast Colorado, southwest Kansas, northeast New Mexico and the Panhandle areas of Oklahoma and Texas will be visited. Marvin Lee, of Wichita, heads the Kansas committee in charge of arrangements.

* * *

Harold Van Deman, refinery engineer for the White Eagle Oil Corp., Augusta, Kans., has gone to the Baku district of Russia to supervise the construction of a refinery. Winkler & Koch, of Wichita, has the contract for the job. Floyd Mauk and Mike Cassidy, stillmen at the Augusta plant, will follow Mr. Van Deman shortly.

* * *

John Oaks, formerly with the Derby Oil Co., Wichita, is now superintendent

of the Pampa, Tex., refinery of the H. F. Wilcox Oil & Gas Co.

* * *

Died: In Tulsa, Charles L. Collins, 43 years old, oil producer. He came from Bradford to Tulsa 21 years ago. Funeral services were held in Bradford. Surviving him are his mother, four brothers, Ray M., Sam W., and Wallace H., of Tulsa and Burt H., of Bradford and Tulsa.

* * *

The census figures are out and Tulsa finished a poor second to Oklahoma City's first in the state. The latter city, according to the government tally, has a little more than 182,000 while Tulsa has 140,000-odd. That argument is settled for the rest of this year, at least.

* * *

M. J. Bonham has been made manager of the Continental Oil Co.'s district land office in San Antonio. He formerly was scout and land man for the Marland and later the Continental in Amarillo.

* * *

Wild wells almost invariably have their aftermath of damage claims. The Indian Territory Illuminating Oil Co. had its share after its Mary Sudik well, in the south end of the Oklahoma City field, cavorted for 11 days. The oddest of the claims was set forth in a suit filed by a man who said that because he was compelled to leave his home near the well and take up quarters elsewhere, his son came down with measles. He thought it was worth $10,000.

* * *

Died: In Los Angeles, F. B. Reed, 83 years, former oil operator in the Mid-Continent. He is survived by sons and daughter: Wade R. Reed, of the Sinclair Pipe Line Co., Tulsa; K. N. Reed, Los Angeles and Mrs. R. L. Bryan, Los Angeles.

* * *

Van S. Welch, Artesia, has been elected president of the New Mexico division of the Independent Petroleum Association of America. George Etz, Roswell, is first vice-president; F. S. Whelan, Lovington, second vice-president; C. J. Dexter, Artesia, secretary and William Dooley, Artesia, treasurer. Other directors are J. D. Atdoow, Harry Leonard, Forest Levers, G. C. DeTemple, Powhatan Carter and W. A. Nicholas, all of Roswell.

* * *

D. J. Moran, president of the Continental Oil Co., has directly denied that a merger will be effected of the Continental and the Tidewater-Associated Oil Co. He declared that his company is not considering a merger with any company. Rumor has persisted for several weeks that the Continental-Tidewater deal would soon be announced.

* * *

J. M. Fielder, formerly of the geological department of the Atlantic Oil Producing Co., is now in charge of geology for the Shappell Oil Co., Wichita Falls.

* * *

Glenn C. Clark, chief geologist of the Continental Oil Co., has been elected a member of the alumni board of the University of Oklahoma.

* * *

E. O. Boggs, employe of the Venezuela Gulf Oil Co., is spending a three-months vacation in Wichita.

* * *

Lacy J. Black, district agent for the Cities Service Oil Co., heads the recently formed Wichita Oil Men's Club, organized under the auspices of the Kansas Oil Men's Association. Membership is open to anyone engaged in the oil business or allied supply trades. W. C. Long, Golden Rule Refining Co., is first vice-president. Ford L. Wright is second vice-president; Dow Dewey, treasurer and D. A. Winters, secretary. Other directors are Edward Schriber and Roy B. Swanson. The club started with 70 charter members and prospects of large gain.

* * *

Good news from Casper is that E. J. (Gene) Sullivan, president of the E. T. Williams Oil Co., is completely restored to health, following an operation in Boston for removal of a tumor on the brain. Mr. Sullivan has been prominent in legal and petroleum affairs in Wyoming for many years.

* * *

Died: In Oklahoma City, W. H. Gilreath, Ardmore district manager for the Wirt Franklin Petroleum Corp. He was 34 years old.

* * *

George Longfellow, superintendent in the Burbank district for the Clint Moore Estate, has resigned to join the producing department of the Skelly Oil Co. He will be temporarily attached to the Tulsa offices.

* * *

W. G. Kidd, warehouseman and field clerk, E. Burnett, engineer and W. C. Young, assistant superintendent, all of the Louisiana Oil Refining Corp.'s organization in the Allen field of Oklahoma, have been transferred to the Darst Creek field of Texas, where the Louisiana company recently bought properties of the United North & South Development Co.

* * *

Died: In Tulsa, John C. Bartlett, treasurer and assistant secretary of the Braden Steel & Winch Co., the Braden Holding Co. and the Braden Steel Corp. He was 47 years old. His widow and two daughters survive him. Also surviving are two brothers, R. H. Bartlett, president of the Braden Holding Co. and E. O. Bartlett, vice-president and treasurer of the Barnsdall Corp.

A.P.I. Advisory Body Formed in Tulsa

TULSA—An advisory committee of executives in charge of production was formed during the May 23-24 meeting of the American Petroleum Institute division of production, Mid-Continent district. The committee will advise with the district officers that most effective discussion of common field problems may be had in the district and chapter meetings.

The committee is as follows: H. M. Stalcup, Skelly Oil Co., chairman; C. W. Baker, T. B. Slick, Inc.; R. A. Bonnell, Tidal Oil Co.; J. J. Conry, Carter Oil Co.; C. P. Dimit, Independent Oil & Gas Co.; George A. Dye, Wilcox Oil & Gas Co.; E. R. Filley, The Texas Co.; J. E. Holm, Atlantic Oil Producing Co.; R. K. Huey, Deep Rock Oil Corp; R. F. McArthur, Barnsdall Oil Co.; W. A. Martin, Sinclair Oil & Gas Co.; George O. Moody, Mid-Continent Petroleum Corp.; F. O. Prior, Dixie Oil Co.; W. G. Ricketts, Amerada Petroleum Corp.; Ralph Roark, Shell Petroleum Corp.; S. G. Sanderson, Gypsy Oil Co.; H. F. Schoonover, Pure Oil Co.; M. E. Wagner, Mid-Kansas Oil & Gas Co.; J. A. Wolfe, Prairie Oil & Gas Co.; A. W. Ambrose, Empire Companies; J. S. Dewar, Phillips Petroleum Co.; A. V. Hoenig, Indian Territory Illuminating Oil Co.; L. C. Hawkins, Magnolia Petroleum Co.; G. W. Porter, Wirt Franklin Petroleum Corp.; E. J. Nicklos, Continental Oil Co.

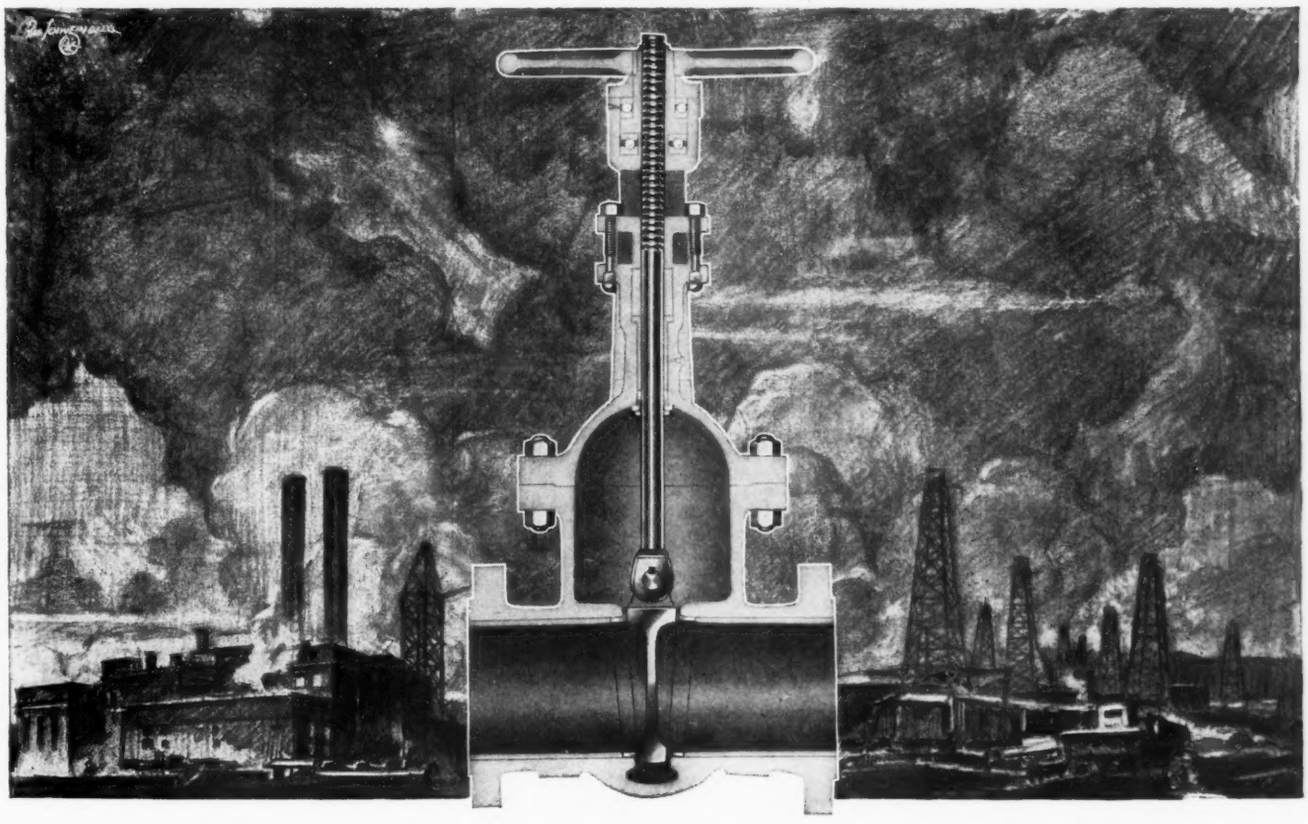
A.P.I. Lines Up Refining Program for Meeting

NEW YORK—The refining division program for the eleventh annual meeting of the American Petroleum Institute is under way. R. P. Anderson, secretary of the division of refining, is requesting authors to send brief summaries of their papers to the institute headquarters at 250 Park Ave., New York, on or before June 21.

The program committee for this division, recently appointed by W. M. Irish, The Atlantic Refining Co., Philadelphia, division chairman, has as chairman T. G. Delbridge, of the Atlantic company. Members are: H. W. Camp, Empire Oil & Refining Co., Tulsa; R. A. Halloran, Standard Oil Co. of California, San Francisco; R. E. Haylett, Union Oil Co. of California, Los Angeles; E. W. Isom, Sinclair Refining Co., New York; N. E. Loomis, Standard Oil Development Co., Elizabeth, N. J.; K. G. Mackenzie, The Texas Co., New York; Walter Miller, Continental Oil Co., Ponca City, Okla.; and R. E. Wilson, Standard Oil Co. (Indiana), Whiting, Ind.

The annual meeting of the Institute will be at the Stevens Hotel, Chicago, Nov. 11 to 13.

Cutting down Replacements



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Current Output of California Crude Nearly Down to Desired Figure

By Jack N. Westsmith
N. P. N. STAFF WRITER

LOS ANGELES, June 6

HEADWAY is being made in the curtailment of California crude production although there is still some trouble in spots. Current output is within striking distance of the state's allowable.

The biggest and sharpest thorn in the side of leaders of the west coast industry is the abundance of crude available to small independent refiners. Townlot drilling in the fields of Potrero, Playa del Rey, and in the Los Cerritos district of the Long Beach field, is yielding and threatens to yield additional oil not under the control of major companies.

This factor combined with the failure of Santa Fe Springs to effect the required curtailment of daily production has prevented the expected upward trend of the industry. The anticipated restoration of crude prices at "the Springs" failed to take place and it is rumored an additional cut will be made in this area unless every operator agrees to play ball.

In conjunction with the strenuous effort of conservationists to prorate California on a state-wide basis to the desired figure of 596,000 barrels daily, state officials have been fighting an uphill battle to prove Signal Hill operators are unreasonably wasting natural gas.

Following a rest period in the Signal Hill hearing from May 28 to June 4, the defendant oil companies asked presiding Judge Crawford to issue an order calling for state legal counsel to show that an unreasonable waste of gas did exist in the Long Beach field. After some consideration this motion was denied and the case proceeded with presentation of the state's evidence.

Defendant counsels for a number of independent operators raised so many objections to this evidence that in the opinion of experts, the case will drag along for at least another week or ten days before the court will rule on the request for a temporary injunction.

June 16 has been set as the opening date for continuation of the Santa Fe Springs hearing at which time the state will ask that the temporary injunction, granted March 19, be made permanent. It is anticipated that this plea will be granted as daily gas production for the field on June 2 was 314,383,000 cubic feet as compared with 346,800,000 cubic feet allowed under the order.

Hearing on the Kettleman Hills gas wastage suit has been adjourned to Sept. 23 following a report to the Superior Court at Hanford, June 2. In making the report counsel for Standard Oil Co., Continental Oil Co. and Milham Exploration Co., stated that it is impossible to curtail the gas production to any great extent, because at least two of the four producers are flowing partly out of control.

Encouraging reports from important wildcat areas vied for attention with announcements of completions in California fields, the past week. Of chief importance were developments in several Los Angeles Basin fields.

Playa del Rey and the Potrero fields showed the most activity with the former gradually moving up out of the ranks of doubtful areas. Completion by Star Petroleum Co. of its No. 1 well in the del Rey field raised the total output to approximately 4600 barrels daily from three wells. Star Petroleum's project was completed in the conglomerate at 6296 feet for 1546 barrels of 24.0 gravity oil. Tubing and casing pressures, of 280 and 875 pounds respectively, indicated the pay sand has plenty of kick.

Although it was anticipated the Star well would pick up the oil sand at around 6100 feet, a crooked hole is thought to have lost over a hundred feet of depth. This completion does not extend the field as it is in toward the field center from Ohio Oil Co.'s discovery well. Ohio is drilling below 6345 feet in its Dickinson 2, northwest of the Star well. As the well is in the oil sand preparations are under way to complete it within the week.

Conditions on the beach portion of this newest California field are much more encouraging. Featherstone and Horwitz, two independent operators, are reported to have picked up oil sand at 5980 feet in their project located on the beach approximately 125 feet back from the ocean. Showings in this well confirm predictions that the del Rey structure would extend into the ocean, as log reports gave the independent well a position approximately 135 feet higher on the formation than inland completions.

In the Potrero field, Richfield Oil Co. copped the prize completion for the week by putting its Hassen 1 on production for an initial yield of nearly 2500 barrels of 41 gravity oil from a depth of 5752 feet. The well was also making slightly more than 2,500,000 cubic feet of wet gas carrying 1.5 gallons of gasoline per 1000 cubic feet.

Deeper drilling in this offset to the Inglewood field has greatly enhanced its potentialities. Once the complicated fault conditions found in this field have been thoroughly studied, and the associated problems solved, production experts expect to make a field at Potrero on par with the neighboring fields of Inglewood and Rosecrans.

Wildcat developments in the Coastal region, north west of Ventura claimed their share of attention during the week. Chanslor-Canfield-Midway Oil Co. again roused the hopes of operators in the Rincon area by preparing to set pipe for a combination test of its Hobson 2-A. The well, located on a hill above the ocean and midway between the Rincon field and the westerly limits of Ventura Avenue is bottomed at 7489 feet after having cored over 500 feet of streaked oil sand.

Showings from the core barrel, are said, to correlate the formation found in this test, with the productive Lloyd sand at Ventura Avenue. A number of geologists and engineers believe the Hobson well will prove up a field.

To the northwest on the tidelands offsetting its More 1 in the Goleta district, General Petroleum Corp.'s Crandall 1 is standing with 9-inch casing set at 4597 feet in the top Vaqueros. This ocean test, located approximately five miles southeast of the Elwood field is causing considerable speculation among California geologists. General Petroleum obtained an unruly gas pressure in its mainland wildcats on the More ranch, but found only a trace of oil. Before the More No. 2 was killed it was said to be making over 10 million cubic feet of slightly wet gas.

Another test, deemed important by operators in the Coastal area, is to be made on tideland permits off the Isla Vista tract near Santa Barbara. Bolsa Chica Oil Co. and Scott-McIntosh, an independent owner, hold

the only permits in this area, as all others were allowed to revert to the state. Bolsa Chica constructed a pier out into the ocean following an extensive submarine survey, and is reported ready to spud in on what is thought to be the structural high.

Although the Long Beach field is one of the most over-developed areas in the Los Angeles Basin it continues to have spurts of activity that at times tends to threaten the existing proration program. At present, the Los Cerritos district of Long Beach, located northwest of the main Signal Hill field, is holding the spot light of interest.

Out of 111 active drillers, making this field the most active on the Pacific Coast, the Los Cerritos district boasts 58 projects in some stages of development. The renewal of drilling in this area may be attributed to completions for approximately 1000 barrels, by each of two wells drilled to 7039 and 7021 feet respectively.

To the southeast and on the flank of the Signal Hill dome there are 27 active drillers, many of which should be on production before July 1. All in all the Long Beach field has, in addition to these drilling wells, 43 rigs and locations, 65 idle or suspended drillers and 88 deep zone producers that are shut in.

In contrast to this general activity throughout California fields, operators at the Santa Fe Springs area continued to hold a wake over the remains of that once flourishing area. At latest count there were only 42 active projects in the field and a majority of these were wells that were being reworked to the shallow pay from nonproductive portions of the lower O'Connell or Clarke sands.

It was estimated deep zone production as of June 5 was 100,135 barrels from 319 wells, an average of 316 barrels per well. Field engineers predicted the field's output would be less than 100,000 barrels by June 15, the lowest it has been since November, 1928. It is the contention of these experts that even though the field were allowed to produce unrestrained it could not make more than 150,000 barrels per day at the most, although new potential figures set for June 1-15 gave this field a possible yield of 191,000 barrels.

The proof of this statement is based upon the number of small producing wells at "the Springs" that are incapable of yielding more than 200 barrels per day and also to the fact that few wells have reached estimated production when opened up following a period of curtailment.

In the Buckbee sand it is estimated over one-third of the producers are in the 200-barrel or under class almost one-third of the O'Connell wells and nearly one-half of the projects completed in Clarke sand during the recent drilling campaign are not able to yield over 200 barrels per day. It was further estimated that nearly one-fourth of these Clarke wells are not able to make even 100 barrels daily.

Operators at Santa Fe Springs are particularly interested in decline curves of the Clarke sand. These production records of individual wells indicate that a producer in the deep sand does not fall off production in the ordinary manner. That is, instead of the yield flattening out at slightly reduced rates over a long period it is likely to die out very suddenly and when least expected. Results have shown that few wells are brought back on production in this sand once they have died.

Four completions, the past week, in the Clarke pay had a combined output of only 445 barrels per day.

On the Western Front

By Jack N. Westsmith
Los Angeles

GEORGE F. GETTY, prominent California and Mid-Continent oil man died following an illness that has kept him from active business for over seven years. Although heart attack was attributed as the immediate cause of death, a paralytic stroke suffered by Mr. Getty in 1923 was the underlying cause.

Mr. Getty has been prominently identified with the development of several of the major California fields during the past ten years and prior to this time he was active in development of oil districts of Oklahoma, Texas and New Mexico.

Management of the company will continue in the hands of J. Paul Getty, who has guided the firm's interests during the past year. Mr. Paul Getty merged his company with his father's interests in 1929, and is reported to be planning an expansion of the combine into refining and marketing departments of the industry.

George F. Getty

* * *

Santa Fe Springs operators, who have been hurt by proration agreements and through partial operation of the California Gas Conservation Law, are reported to be flocking to the standards of the Independent Petroleum Association. There are so many dissatisfied small operators in the townlot areas of Sheffield and Signal Hill that Wirt Franklin is expected to have quite an audience when he arrives for a visit of California fields.

* * *

Independent California operators are looking forward to the proposed visit of Wirt Franklin, president of the Independent Petroleum Association of America, to the Pacific Coast early in June. Plans are reported now under way to have both Franklin and Louis Titus of the same organization, in Los Angeles at the same time to address a meeting scheduled to unite the independent operators into a more or less solid faction.

* * *

William C. Marshall, geologist for the California Nammoth Oil Co., recently returned from a three months' business trip to Nicaragua. His reports of developments in that area by major interests indicate anything but a shortage of crude oil reserves.

* * *

With the coming of summer weather, the picnic season is on. Barnsdall Oil Co. held its annual gathering of employees on May 24 at the appropriately named resort, "Playland," near Triunfo. About 700 employees and members of their families were present. An important feature of the event was the presentation of a watch charm to R. A. Bloomfield, president of the company, in commemoration of his 25 years of service with the Barnsdall organization. The gift consisted of rubies, diamonds and emeralds in the form of a "Be Square" emblem of the company.

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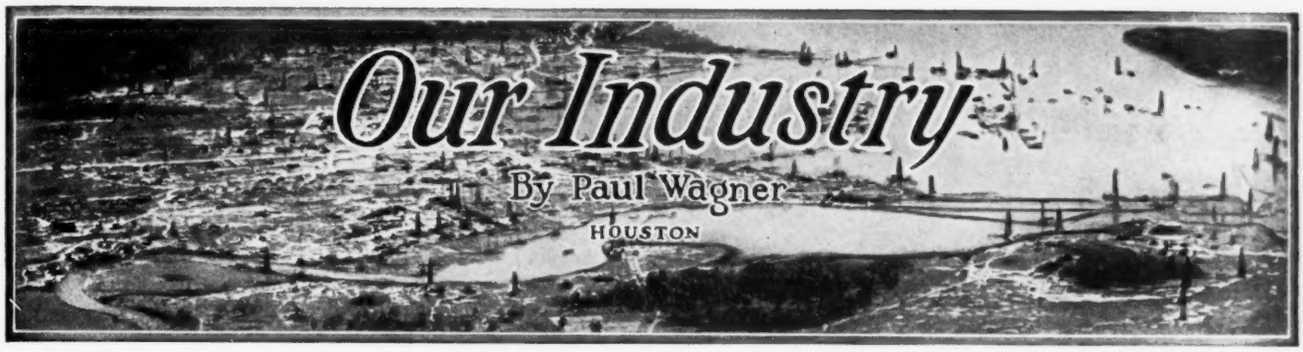


FURTHER contributions to the subject of deep pay production in West Texas are contained in contributions to the May issue of the Bulletin of the American Association of Petroleum Geologists. They supplement the remarks of the writer, appearing on pages 45 of the May 14, 1930, issue of NATIONAL PETROLEUM NEWS, about present identification of the 8500-foot horizon in the Big Lake field of Reagan county as being of Ordovician age.

B. H. Harlton of the Amerada Petroleum Corp., writing by permission of his company, describes fossils of Pennsylvanian age characteristic of the upper part of the Atoka formation of Oklahoma, and of the Kickapoo Falls limestone member of the Millsap formation in Texas, as being found between 7000 and 8295 feet in the Texan—Group One discovery well. Fossils found from the last mentioned depth to the completion level of 8520 feet would not be definitely identified at first, but definite determination was later made on cuttings from the C-1 well of the Big Lake Oil Co., the lowest strata in both wells being described as of Silurian and Ordovician ages.

Mr. Harlton says the beds probably represent formations equivalent in age to the Hunton limestone, Sylvan shale, Viola limestone and Simpson formation of Oklahoma. He adds that it is evident that the Silurian and Ordovician formations which crop out in the Arbuckle and Wichita Mountains of Oklahoma exist underground in parts of north central and west Texas; and that they were originally continuous with the rocks of the same age which are now exposed in the Marathon uplift.

Reference is made to similar correlations by Fred A. Bush of the Sinclair Oil & Gas Co., Tulsa, and S. W. Lowman of the Mid-Continent Petroleum Corp., Tulsa.

Mr. Lowman, in a short contribution on his own account, made by permission of the Mid-Continent company, quotes E. O. Ulrich, another widely known geologist, as maintaining that the Richmond stage of the Cincinnatian is more properly a part of the Silurian than the Ordovician. This classification is contrary to that of most other stratigraphers, but it seems to Mr. Lowman, he says, to be the most natural classification to follow at Big Lake.

Mr. Lowman describes the Big Lake Oil Co.'s C-2 well at Big Lake as producing from the basal part of the Hunton, which next to the Ordovician is the largest pre-Pennsylvanian producing horizon in Oklahoma. The C-2 well is now producing about 650 barrels daily and is second only to the discovery well of the field, which yields above 2800 barrels daily.

* * *

Referring to deep test wells in the oil industry. A new world record for drilling has been set up in California, notwithstanding that the Big Lake field of Texas continues to hold its laurels for production at depth.

Standard Oil Co. of California, drilling its Mascot No. 1 in the Midway division of the San Joaquin Valley region, achieved the record depth of 9629 feet a few weeks ago. The test was spudded Jan. 5, 1929, and required 458 days to reach the depth mentioned. Of that time, 42 days were spent in redrilling on account of a cement plug being placed to restore circulation.

J. T. Stover

An outstanding feature of the Standard well is described as the 7⅞-inch hole which the core bit was making just prior to shutting down operations. This comparatively large size hole was drilled below 6350 feet, where the 9-inch casing was cemented, thus making 3279 feet of open formation in the well when drilling was stopped. All of this was drilled with 4½-inch drill pipe without a single twist-off.

In the well there is steel pipe weighing more than 850,000 tons, sufficient cement to build a standard 5-foot sidewalk nearly a mile long and more than 1600 pounds of rubber used to protect the casing while drilling.

Drilling was carried on by the company's northern district producing department, of which Roy Fry is general superintendent. The well itself is in the Maricopa-Wheeler ridge area, where E. M. Delaney is superintendent. L. H. Munding, drilling foreman, had direct charge of operations. C. E. Black, M. D. Freeland and L. J. Frey, drillers, were on the job from the time the test was spudded until its recent shutdown.

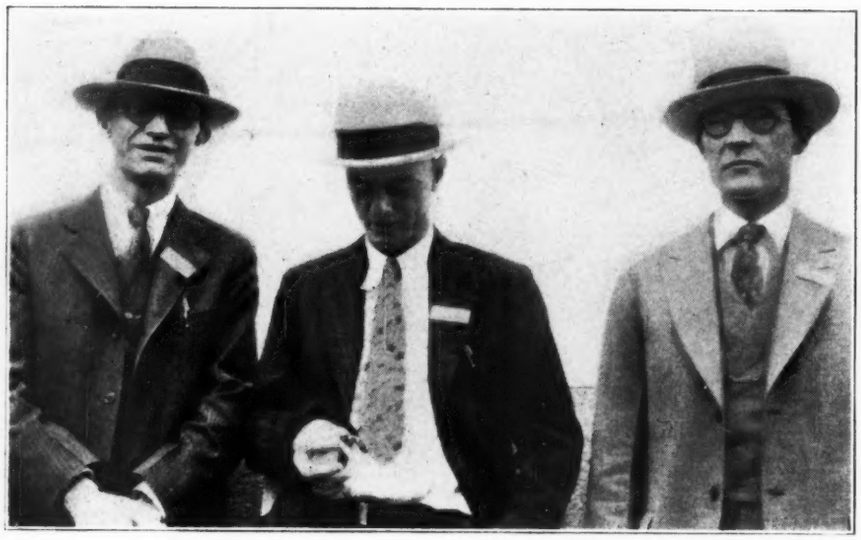
There seems to be no reason, California Standard officials say, why greater drilling depths may not be attained, if desired, in the Mascot No. 1 test. The 122-foot steel derrick has never been reinforced, jacked or even re-guyed since drilling was begun. The well was drilled, in general, with usual equipment for routine development in the area.

Temperature at the bottom of the hole was calculated to be 218 F., or six degrees higher than the temperature at which water boils at sea level.

* * *

J. T. Stover, president of the Alamo Drilling & Leasing Co., San Antonio, is one of the successful younger group oil operators of southwest Texas. He started his career as a school teacher, but the urge for activity pitched him into the leasing branch of the oil business in the early days of West Texas development.

A dry hole or two in Reagan county failed to dampen his ambition, after which Mr. Stover drilled contract holes in southwest Texas until his first strike in the Corpus Christi gas territory. More recently, Mr. Stover



D. D. Christner, O. C. Wheeler and R. L. Cannon

has been devoting his attention to oil production on his property in the Laredo district.

* * *

In the accompanying group picture are shown three widely known geologists, two of whom concentrate on West Texas, the third on South America. From left to right they are D. D. Christner, division chief geologist, Continental Oil Co., Fort Worth; O. C. Wheeler, International Petroleum Co., in Colombia, South America; and R. L. Cannon, of the firm of Cannon & Cannon, San Angelo.

* * *

Earl Cosper is foreman in charge of new development under way by the Skelly Oil Co., in Ector county, West Texas. He was foreman in Winkler county for a time in 1928, but later was transferred to Kansas in 1929. He works with James C. Creedon, superintendent in West Texas, with headquarters at Wink.

* * *

J. W. Des Champs is in charge of the Buenos Aires office of the Lucey Products Corp., having been transferred to Argentina from New York.

* * *

Robert B. Campbell, consulting geologist, formerly of San Angelo, has moved to San Antonio. In addition to his professional work, Mr. Campbell has headed the San Angelo Music Guild as director, presenting six major productions, including "Carmen." He was one of the organizers of El Capitan Oil Co., after resigning from the geological staff of Humble Oil & Refining Co., in 1925.

* * *

George C. Kiskaddon, independent oil operator of California, has opened an office in Midland for the West Texas Permian salt basin region.

* * *

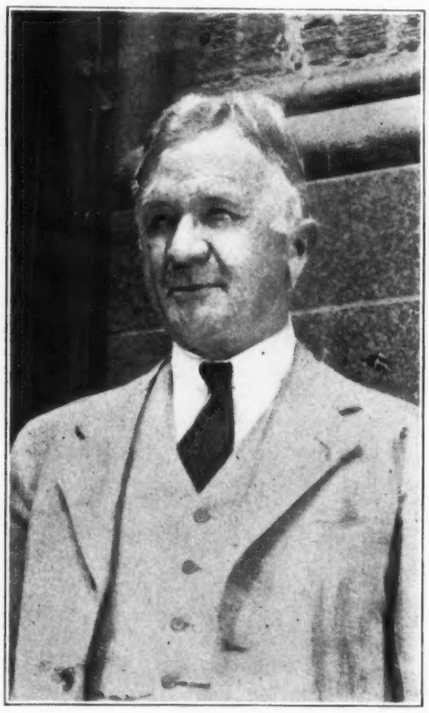
W. E. Otey is in charge as manager of a new 22,000-gallon capacity bulk station established at Snyder, Texas, by the Humble Oil & Refining Co., for the distribution of petroleum products.

* * *

Col. Billy Mayfield of Houston, widely known in newspaper circles of the southwest, is prospecting the Jackson region of Mississippi. He was recently joined at Jackson by Watt Schieffer, an associate, and E. G. Nicar, magnetometer operator.

* * *

R. D. Parker, chief supervisor of the oil and gas division, Railroad Commission of Texas, carries on his shoulders the administrative responsibility for conservation work within the state. He is now one of the most widely known figures in the petroleum industry of Texas, attending all commission hearings on proration practice in his official capacity and frequently conducting them in the absence of commission members.



R. D. Parker

* * *

C. V. Edwards Jr., formerly gasoline plant foreman for the Magnolia Petroleum Co., in the Cotton Valley district of Louisiana, has been transferred to the Bull Bayou territory, where he will take charge of another plant.

* * *

Sam Gamble, Ranger district superintendent of the Lone Star Gas Co., has four compressor stations in the central Texas region under his jurisdiction. Each is directly in charge of a chief engineer and assistant. Mr. Gamble has been with the Lone Star since 1914. From 1919 to 1925 he held the position of chief engineer in one territory or other. In 1919 he was made chief engineer of the compressor department in the Fox field, Oklahoma; from 1921-1925 he was chief engineer at Mineral Wells, Ibex and Albany. He then was appointed to his present position.

* * *

H. W. Bradshaw, formerly of the Magnolia Petroleum Co.'s payroll department at Dallas headquarters, is now assistant in the machine shop office at Duncan, Okla., under Supt. S. B. Faulkner.

* * *

B. B. Jones and T. B. Slick, widely known Mid-Continent operators, are continuing to take up wildcat leases on the Jackson anticline, in Mississippi. Bonuses of $10 to $15 an acre are being paid for their joint holdings, according to considerations shown in filings made at Jackson.

* * *

The question of the definition of "gasoline substitutes" under the Texas law has been left to the offices of the comptroller and the attorney general, according to a statement of L. H. Flinn, managing director of the Texas Petroleum Marketers' Association. Recommendations made by a group of marketers, refiners and technologists appearing before the state comptroller were recently rejected.

A motion was offered proposing that any petroleum product having an initial boiling point less than 165 degrees F., and an end point less than 525 degrees F., be considered a taxable substitute. A committee appointed by the comptroller reported it could not intelligently or equitably draw the line between gasoline and gasoline substitutes.

* * *

F. S. Smithers & Co., 15 Broad street, New York City, announce the retirement of Austin L. Smithers and the admission of Peter J. Murphy to general partnership. "Pete" Murphy, long a financial writer on the Wall Street Journal, is widely known to executives in the petroleum industry.

Luling Fault Zone Fields Produce More Than 66,000,000 Bbls.

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, June 5

THREE previously developed fields in the Luling fault zone of central south Texas, where a fourth discovery was made last week,[1] have produced in excess of 66,000,000 barrels of crude oil, mainly from Edwards limestone pay horizons.

The three older developments, now supplemented by the Seligman discovery area, six miles south of Seguin, in Guadalupe county, are the Luling field of Caldwell-Guadalupe counties, which has yielded 47,539,000 barrels cumulative production; the Salt Flat field, Caldwell county, 16,548,000 barrels; and the Darst Creek field, Guadalupe county, 2,103,000 barrels.

Most of the yields in the three developed fields have come from the Edwards limestone horizon, which produces consistently at Luling from 2160-2300 feet; Salt Flat, 2650-2750 feet; and Darst Creek, 2550-2650 feet.

[1]NATIONAL PETROLEUM NEWS, May 28, 1930.

The new Seligman area, discovered by a well in the Heirs of H. J. Williamson survey, produces from total depth of 2511 feet, in Austin chalk formation, surface elevation 595 feet above sea level.

Volume of the oil produced, at the rate of 2000 barrels daily on a short period test, compares favorably with initial yields at Darst Creek and Salt Flat, earlier fields in the northeast-southwest trend through Caldwell and Guadalupe counties.

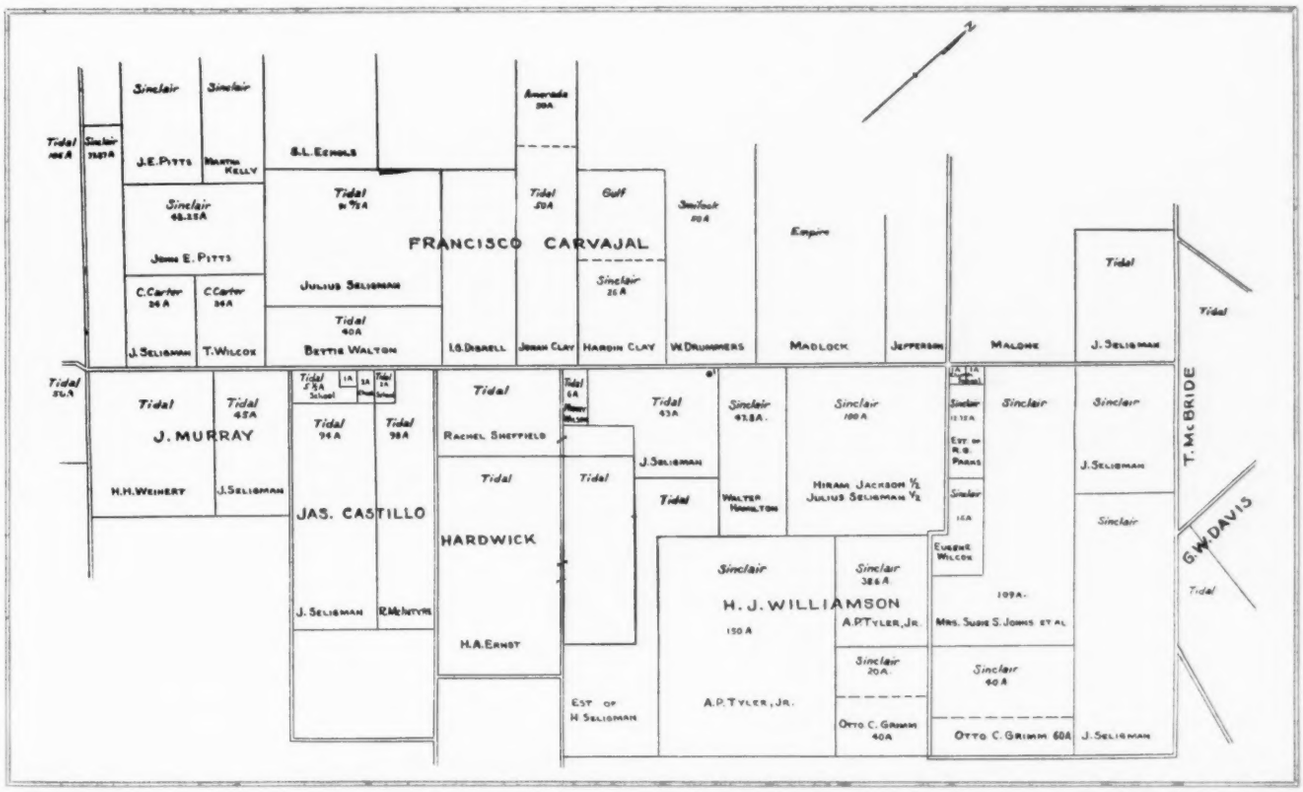
It is significant in connection with the Seligman discovery that the first Salt Flat well, eighteen miles away in Caldwell county, produced from the Austin chalk in similar volume. The first well in the Darst Creek field, 11 miles northeast of the Seligman discovery and seven miles southwest of the Salt Flat field, produced from the deeper Edwards limestone horizon, but some Darst Creek production comes from the Austin, or crevices above it.

Two companies, each with approximately 1400 acres of leaseholds in the Seligman area, will own the principal part of the new producing field, it now appears. These are the Tidal Oil Co., of Texas, for which the Trinity Drillers, Inc., of San Antonio, drilled the discovery well; and the Sinclair Oil & Gas Co., operating through its Fort Worth division.

Other companies owning leaseholds that probably will be found productive in the future are the Empire Gas & Fuel Co., Cities Service subsidiary, and the Gulf Production Co.

Upon the extent of the producing area, as shown by future drilling, will depend whether still other companies will figure in Seligman development. It will be recalled that the Salt Flat field is approximately seven miles long by 1600 feet across at its widest point; the Luling field, of similar size; and the Darst Creek development area, five and three-tenths miles long by 2400 feet at its greatest width.

The original Luling field, discovered in 1922 by the United North & South



Map showing lease ownerships in Seligman discovery area of Guadalupe county, Texas, southwest of the Darst Creek field. The lone well mapped is the Tidal Oil Co. of Texas, discovery. Tidal and Sinclair Oil & Gas Co. own most of the leases expected to be found productive

Oil Co., Edgar B. Davis president, has yielded an average of nearly 82,000 barrels per well from the 580 completions in the area. It lies *en echelon* to the Salt Flat and Darst Creek fields, about five miles north of the southwest end of Salt Flat and about seven miles north of the most northeasterly point in the Darst Creek producing territory.

Salt Flat, Darst Creek and the Seligman discovery area trend progressively northeast-southwest past the town of Luling, structural "saddles" existing in the subsurface between the fields. Fault conditions are traceable on the surface throughout the high parts of the trend, except that they are more obscure in the Seligman discovery area. Beyond it to the southwest, faulting is more plainly traceable through a large block of Guadalupe leaseholds owned by the Humble Oil & Refining Co.

Original production at Salt Flat, was discovered in an Austin chalk well of the Sun Oil Co., completed Sept. 18, 1928, opening a field that reached a peak of daily production at approximately 52,000 barrels in July of the following year. This compared with a Luling peak of nearly 50,000 barrels in 1923.

Production from the chalk level at Salt Flat, which was largely confined to the southwest one-third of the field, declined rapidly. It was the more consistent production in the middle third and the northeast part of the field that brought production to its highest levels.

With the exception of the northeast one-third of the proved area, which consists of closely held leaseholds of Humble Oil & Refining Co., and the Luling Oil & Gas Co., the field was mainly drilled up by the end of 1929.

A considerable Salt Flat reserve for future drilling exists, however, under leaseholds controlled by the Humble in two classifications, namely, acreage held for its own account and properties owned jointly with the Luling Oil & Gas Co.

Except for their position *en echelon* to each other, the Salt Flat and Luling fields are entirely similar; both depending on fractures of bedding-planes for accumulation of oil against an impermeable seal and flowing production influenced in both cases by natural water drive.

Water encroachment, though responsible for the holding of peak production at relatively low daily average levels in both fields, has served, nevertheless, to bring about high per well and per acre recoveries. Dehydration is necessary to make the oil merchantable, but the water and emulsion separate out easily and the expense of treating is about the only drawback resulting from encroachment.

Darst Creek, 11 miles southwest of Salt Flat, is now experiencing water trouble, especially in the south part of the field, where a number of wells on adjoining leaseholds went "dead" when the Empire Gas & Fuel Co., recently brought in a well. Water is also making serious inroads on production in the area of the Magnolia Petroleum Co.'s Roamel big well in the north part of the field.

Because of prorating practice, Darst Creek has been exploited below 27,000 barrels daily at all times; 23,000 barrels by companies party to the prorating agreement, based on market outlets of the Humble, Gulf, Magnolia and Louisiana Oil Refining companies, and approximately 4000 barrels daily by Fort Worth and San Antonio interests not party to prorating.

The 106 wells completed in the Darst Creek field represent only a part of its final development, whereas the 580 wells at Luling served to drill up that area and the 317 at Salt Flat have finished up the field work in all except the controlled territory where Humble will eventually develop for the account of itself and the Luling Oil & Gas Co.

Darst Creek's potential production, exceeding 250,000 barrels daily, as recognized in the prorating yardstick, has this in common with West Texas potentials in areas of prorating practice—it is not exploitable for sustained daily yields.

Although prorated in similar manner to the Yates field of Pecos county, West Texas, the Darst Creek area is split into 20-acre units instead of 100-acre tracts. Average potential production of unit wells forms one factor in reaching yield allowables and acreage also earns a part of the rating in the yardstick.

For the present, no consideration has been given conservation steps in the Seligman discovery area, but at such time as more definite promise is given of flush yields the territory will come in for discussion. The fact that a large part of the probable producing area is held by the Tidal and Sinclair companies may be considered as making for facility of development terms.

Book Reviews

PROBABLY never before in the history of the oil business has there been such a wealth of geological data available to everyone as there is today. The American Association of Petroleum Geologists has been especially active the past three years, having in this time brought out two volumes on the "Structure of Typical Oil Fields." State surveys and the U. S. Geological Survey are constantly at work investigating specific regions.

So much has been published that the busy man can scarcely find the time to give it even the most casual of study. Appreciative of this condition, Prof. Walter A. Ver Wiebe, of the University of Wichita (Kans.) has prepared "Oil Fields of the United States. "Besides his six years of teaching geology, four years at the University of Michigan—the author is equipped with five years of field work for oil companies.

He follows the method of dividing the United States into geologic provinces. These he refers to as the Appalachian Geosyncline, the Cincinnati Arch, the Eastern Interior, Coal Basin, Western Interior Coal Basin, Ouachita-Amarillo Mountain, Bend Arch, Gulf Embayment, West Texas Basin, Rocky Mountain Geosyncline and the Pacific Geosyncline provinces.

Under each heading he includes historical geology of the region, some history of the oil fields of each, a stratigraphic table of the province and some history of oil development.

The book, 629 pages, is well illustrated with maps, photographs, geologic sections and stratigraphic tables. As it is so largely a compilation of the writings of other geologists, extensive bibliography is supplied at the end of each chapter.

* * *

A review of the economic, statistical and juridical situation of the petroleum industry in Roumania is contained in the book "Petroleum in Roumania" now being published in English at Bucharest. It is by Mihail Pizanty, editor of the oil paper "Moniteur du Petrole Roumain," Bucharest. It is being published under the auspices of the Roumanian Economic Institute.

The book includes 70 pages of such information as Roumania's part in the world petroleum industry, the area of its oil fields, the latest concessions granted by the state; drilling, production, refining, export and import statistics; oil treatment; personnel of its oil industry; capital invested classified according to nation; transportation; prices of crude and refined products; taxes and transport rates.

* * *

The 21st annual edition of the Oil and Petroleum Year Book, sometimes called Skinner's Manual, has been published by Walter E. Skinner, London.

It is a directory of 570 oil companies in all parts of the world, including oil producers, refiners, pipe and steamship carriers and oil finance companies. Its 430 pages list names of officers of these companies, addresses, property locations, purchase consideration, number of wells sunk, amount of production, refinery capacities, capitalization, dividends paid, and other pertinent information.

The book may be purchased from Walter E. Skinner, 15 Dowgate Hill, Cannon St., London, E. C. 4, England. Price is 8s 6d. (about $2.32) per copy.

ADVERTISING PAGES REMOVED

Gas Sands of Southwestern Kansas The Same as Texas Panhandle

By William F. Lowe
N. P. N. STAFF WRITER

TULSA, June 6

THE increased drilling and stringing of pipe for a 26-inch line into that area has made the southwestern corner of the state of Kansas the most active gas territory in the Mid-Continent.

The production record of the few wells already completed more than justifies the present activity. Though they are not large and have a low initial rock pressure compared to other areas in Kansas and Oklahoma, the area which they open is of such size it becomes one of the major gas fields of the country.

The stigma which formerly attached to the bringing in of a gas well has long since been removed and the increased importance of natural gas is now thoroughly recognized. Transportation problems have largely been solved and distant markets made available through the use of longer and longer lines.

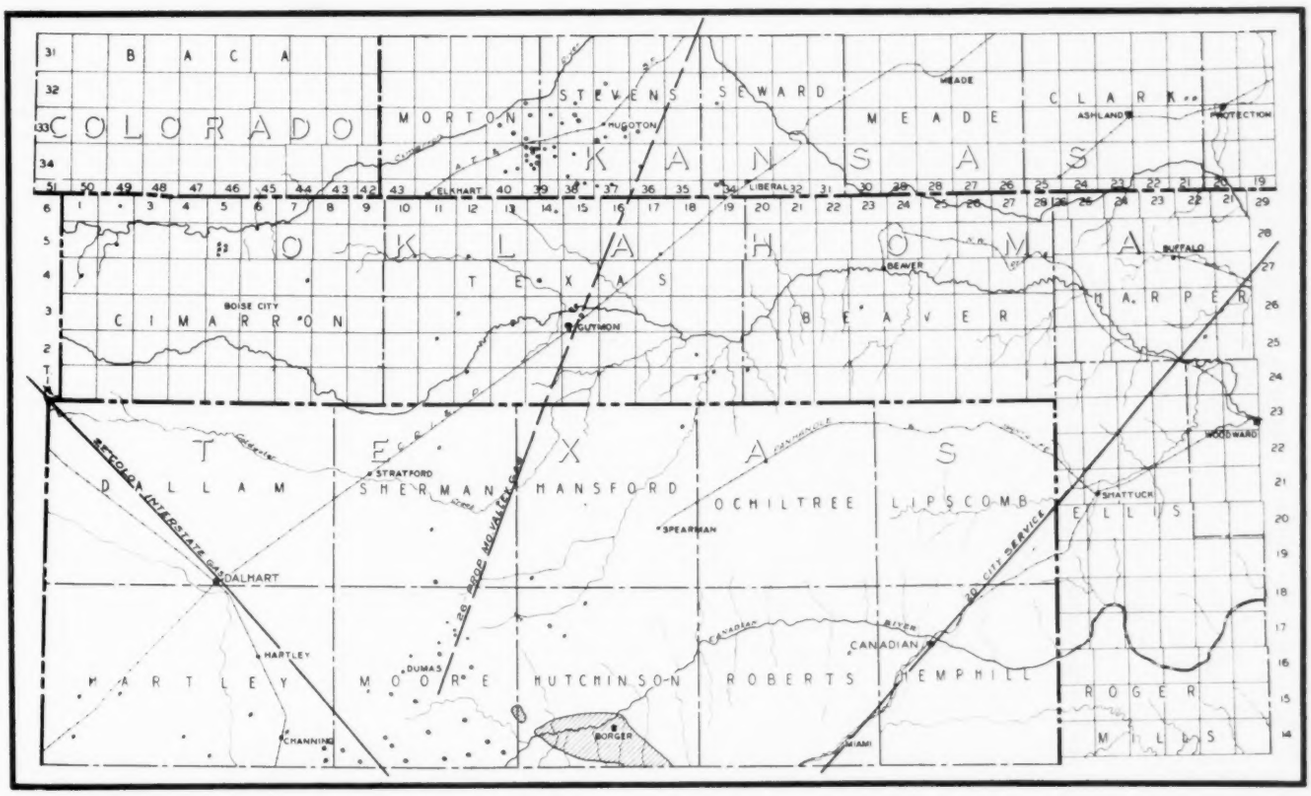
The result has been a right-about-face among oil men and the scramble for gas acreage is on in a number of states. The wise ones were already in and are buying more, for natural gas has proven of far greater value per dollar invested than has oil.

Two years ago much of the territory shown on the accompanying map was discounted, simply because it was known as gas acreage. For this reason many of the original lease owners allowed their holdings to lapse but there is little of the proven acreage left at the present time. Over 100,000 acres of strictly gas land in the area shown have changed hands in the last six months. The major portion of this leasing has taken place in Moore, Hansford and Sherman counties in Texas there has been a very active lease play in the southern tier of counties of Kansas.

That there is a direct connection between the two areas seems no longer a question. The characteristics of the gas fields of the Panhandle and of southwestern Kansas, as regards quality of the gas, position and age of pay sands and rock pressures, are so nearly the same that no other conclusion seems tenable. Their principal difference is found in the average well initials, which are considerably larger in the Texas counties.

In Kansas the gas pays are found between 2600 and 2800 feet, and like those of the Panhandle, are in the basal Permian. Between the two areas lies the northwestern extension of the Anadarko basin, that great synclinal trough which occupies most of the territory in western Oklahoma north of the Wichitas. According to Greene* the deepest portion of this great geosyncline lies between townships 7 and

*Frank C. Greene, chief geologist, Shell Oil Corp., Tulsa, Bull. No. 40-D Oklahoma Geological Survey.



Map showing the Permian gas area of the north portion of the Texas Panhandle, the Oklahoma Panhandle and the southern tier of Kansas counties. Note the large number of drilling wells in two of the latter. The gas line shown on the left goes to Denver, Colo., and the one on the right to Kansas City while the proposed line in the center has Omaha and Council Bluffs as its objectives

13 N and Ranges 10 to 25 W., in Oklahoma.

From this area the beds rise in all directions, sharply on the south and west toward the Amarillo mountains and more gently toward the north and northwest. In Moore, Sherman and Hansford counties in Texas the basal Permian beds are found from 2500 to 3000 feet higher than in western Oklahoma. The same is true in the counties of the Oklahoma Panhandle and in the lower tier of counties of Kansas.

The main gas horizon for the whole area is a dolomite interbedded with thin limestones and anhydrite. The complete section, however, shows considerable change from south to north as the red beds of the Panhandle are replaced to some extent by blue shales in Kansas. In the latter area there are not as many gas sands as are found in Texas, though the major pays appear at approximately the same depths and in the same formation. These facts have led to the belief that the gas horizon for the whole region lies about the northwestern rim of the Anardarko Basin.

The regional trend on the map seems to be NW-SE paralleling the axis of the Amarillo granite ridge across the Texas counties, turning north across Texas county, Okla., and bearing toward the east into Kansas. The accompanying table gives the depths at which the various pays are found along this curving trend.

Gas sand record of representative wells in the area shown on accompanying map. All of the productive horizons are in the lower Permian.

County	Company	Location	Gas Sand	Total Depth	Initial Production
Stephens	Argus Gas	29-33-36W	2660-2680	2720	8,000,000 cu. ft.
Stephens	McKenna	10-33-38W	2579 and 2636	2636	10,000,000 cu. ft.
Morton	Argus Gas	16-34-39W	2652 and 2780	2790	5,000,000 cu. ft.
Seward	Defenders	3-35-34W	2880	2919	5,000,000 cu. ft.
Texas	Wilcox	4-14E	2685-2700	2705	6,000,000 cu. ft.
Texas	Home Dev	1-12E	2693-2707	2707	7,000,000 cu. ft.
Moore	Phillips	192-3T	2790-2810	3400	16,000,000 cu. ft.
Moore	Shamrock	24 Blk 26	2590 and 2753	2753	75,000,000 cu. ft.

Cimarron county, Okla., and Dallam county, Texas, seem too far west to be in this trend. Five wells have been drilled in the former to an average total depth of 4000 feet, and none have had more than fair gas showings in the lower Permian. In 27-5-5N, the first well drilled in the group shown on the map, that of the Ramsey Petroleum Corp., had a good oil show from 4090 to 4140 feet, but has never been put on production. It had very little gas even in the oil sand and the same was true of the other wells in the area. Two more are being put down in the neighborhood but they are seeking oil rather than gas.

Texas county has more dry holes than Cimarron, but has been more fortunate in finding commercial gas production, for it has three good wells in its central portion. All of these wells are obtaining their gas from the Permian and, though the local market is small, two of the wells have already paid out. It is quite probable that, as large lines are built through the county from the Panhandle on the south, this gas area will be tapped by further drilling.

The subnormal rock pressures found throughout the whole region are something of a mystery. Maximum initial gauges average between 420 and 450 pounds over the entire gas trend, and in only a few isolated cases have pressures above this figure been found. Several explanations of this phenomenon have been offered, though that of Bauer** seems the most logical and has been quite generally accepted.

He suggests that hydrostatic head is entirely lacking in the upper gas formations, due to the cutting off a water supply by the pinching out of the beds of the series, both on the west and the east. His reasoning is borne out by the fact that the rock pressure in the gas sands is but half the hydrostatic head found at sea level in the deeper wells. In explaining the difference, Mr. Bauer advanced the theory that the large quantities of anhydrite common to the section might very possibly have taken up much of the connate water in the process of changing to gypsum. The result would be a lowering of the water table, which in turn, would reduce the pressure.

Moore, Sherman and Hansford counties in the Texas Panhandle, are having the greatest lease play experienced in several years and the major portion of it is due to the desire to acquire gas acreage. Oil possibilities in the last two are still something of a question, for no commercial production has been found in them to date. Moore county, however, already has one pool on its lower east side and there is more than a suggestion of another in its north half. Two good producers of high gravity crude are already in this area and several other wells are being drilled near them.

It is in Moore county that the new gas line is to have its southern terminus. All of this line's immediate needs could be supplied by the three Texas counties, for well initials, particularly in Moore county will average around 20,000,000 cubic feet. It is understood however, that a big percentage of the line capacity of approximately 200,000,000 cubic feet is to be drawn from the new gas field in Stephens and Morton counties of Kansas.

In these counties the Argus Gas Co., whose stock is partly held by the Moody-Segraves interests, already has five completed gas wells with a total potential production of 42,000,000 cubic feet per day. Within the past six weeks this company has started operations on 29 more wells in the area and new locations indicate that drilling is to be rapid in preparation for the new line.

Stephens county is blocked almost solid, as it seems to offer the greatest possibilities. The major acreage holders are the Argus Gas Co., Prairie Oil & Gas Co., Empire Gas & Fuel Co., Magnolia Oil Corp., Independent Oil & Gas Co., and the Trees Oil Co. Morton county still has a few leases open, though the same companies are in the play. The Wilcox Oil & Gas Co., and the Shell Petroleum Corp. have been checkerboarding instead of blocking.

The projected 24-inch line, part of which is already under construction, is to be approximately 900 miles long. It is being constructed by the Lone Star Gas Corp., in conjunction with the United Light & Power Co., and the North American Light & Power Co., and is the fourth long distance line to enter the Panhandle. It will be the first however, to tap the gas area of western Kansas.

The markets to which the gas is to be taken are in Nebraska and Iowa, with such cities as Lincoln and possibly Omaha in the former and Des Moines, Sioux City and Council Bluffs in the latter as the principal objectives. Many of the intervening cities will also be on the line and, regardless of its large capacity. it will be taxed to meet the demand. Other projects of similar size are rumored for the same territory and the next year will probably see these lines in operation.

**C. Max Bauer, Consulting Geologist, Boulder, Colo., Bull., A.A.P.G. Vol. No. 10 No. 8, 1926.

Producing Division Membership Leads

CLEVELAND, June 6.—The division of production of the American Petroleum Institute has enrolled 590 individual members since its establishment last February. The division of marketing has 397 members and the division of refining 311 enrollments. The total of the three does not constitute the full membership of the Institute but only those who have joined the definite groups since February.

Rules Made for Testing Car Appliances

CLEVELAND, June 6.—Rules governing the submission and testing of tank car domes covers, safety valves and bottom outlet valves were agreed upon at a meeting at Lafayette, Ind., May 20, by representatives of the American Petroleum Institute, the American Railway Car Institute and the American Railway Association. Tests of these devices now are made at the experiment station at Purdue University.

The United States imported 5,450,000 barrels of crude oil during January, of which 2,630,000 barrels came from Venezuela and 1,181,000 barrels from Colombia. Value of total crude imports was $5,839,244.

Evaluation of Lubricating Oils By the Work Factor Method

By J. G. O'Neill[a] and F. M. McGeary[b]

IN a previous article[1] a work factor method of evaluating lubricating oil for forced feed and motor cylinder use was first proposed. This was based upon the oil's behavior in actual operation simulating service conditions and measured by increase in the following characteristics: (1) Viscosity, (2) Neutralization number, (3) Precipitation number, and (4) Carbon residue.

The practical test, which covers a period of 100 hours, is made in a special endurance machine designed to eliminate contamination and dilution. Except for slight variations in room temperature, conditions are the same for all tests of oil of the same viscosity range and the results are a good measure of those to be expected under actual operating conditions. In the following discussion, oils of the various viscosity ranges are identified by the Navy symbol number. Table 1 shows what each of these symbols represents.

Work Factor Method

The method of calculating the work factor is as follows:

(1) Viscosity is determined at three temperatures, viz, 100, 130, and 210 F. An increase of more than 20 per cent on oils for symbols 2110 to 2310, inclusive, and of 25 per cent on oils for symbols 3080 to 3120, inclusive, at any one of the three temperatures marks the oil as not acceptable. Reducing the increase in viscosity to a work value basis, zero increase warrants a work value of 1.00 and an increase between zero and 20 or 25 per cent some value less than 1.00. Formula 1 is used to compute the work value of increase in viscosity at each temperature.

Formula 1

$$\text{Work value} = 1.00 - \frac{\text{Final viscosity} - \text{initial viscosity}}{\text{Initial viscosity}}$$

For C use 0.20 for symbols 2110 to 2310, inclusive and 0.25 for symbols 3080 to 3120, inclusive.

(2) Neutralization number, precipitation number, and carbon residue will all increase in content to some extent during the endurance test, the poorer oils showing greater increases. Table 2 shows the initial acceptable content, the initial rejection content, and the final rejection point for these characteristics.

Table 2

Characteristic	Maximum Content Initially Acceptable	Initial Rejection point	Final Rejection point
Neutralization number.....	0.10	0.11	1.01
Precipitation number.....	None	.05	1.01
Carbon residue, 2110, 2135, 2190, per cent.....	.50	.55	1.05
Carbon residue, 2250, 2310, per cent..	1.00	1.05	2.05
Carbon residue, 3080, 3100, 3120, per cent.....	1.50	1.55	3.05

Any content beyond that allowable is considered sufficient reason for rejection of an oil. Two ratings are given to the carbon residue, one based on the initial content using formula 2 and the other on the increase in content during the endurance test using formula 3.

Formula 2

$$\text{Work value} = \frac{\text{Initial rejection point} - \text{initial content}}{\text{Initial rejection point}}$$

Formula 3

$$\text{Work value} = \frac{\text{Final rejection point} - \text{final content}}{\text{Final rejection point} - \text{initial content}}$$

One rating only will be given for neutralization number and for precipitation number based on the initial content, which always must be 0.10 or less and zero, respectively, and the increase in content during the endurance test, using formula 3.

(3) After completing the calculations, the work factor is developed as follows:

(a) Average the results obtained by formula 1 for viscosity.

(b) Average the results obtained by formulas 2 and 3 for carbon residue.

(c) Collect the different work values as follows:

Viscosity .....
Neutralization number .....
Precipitation number .....
Carbon residue .....
Total .....
Average or "Work Factor"....

(4) To be acceptable an oil must not exceed any of the rejection points shown in Table 2 and must have a "Work Factor" of not less than 0.50 after the endurance test.

(5) Formula 4 is used to apply the Work Factor to purchases, the low service cost per gallon being considered the low bid.

Formula 4

$$\text{Service cost per gallon} = \frac{\text{Cost per gallon}}{\text{Work factor}}$$

The proposal to evaluate lubricating oil by this method caused considerable discussion as was to be expected, the principal points being as follows:

(a) Does the test favor paraffin over naphthene oils?

(b) Does the lack of control over temperatures and the variation in room temperature affect the results between two oils?

(c) Is the test reproducible and can the same results be obtained on two different machines?

(d) Does a high work factor indicate low consumption?

Comparison of Paraffin and Naphthene Base Oils

The most serious question is as to the effect of the test upon oils made from paraffin and from naphthene crudes. The Navy after extensive experience covering a period of more than 15 years in the actual use of lubricating oils from different bases has concluded that there is no choice between a well refined par-

Table 1

Navy Symbol	Corresponding S. A. E. Grades	Commercial Designation	Viscosity, S.U.V., at 130 deg. F.	Viscosity, S.U.V., at 210 deg. F.
1075.....	None	Ice machine	65–85	
2110.....	20	Light	100–115	
2135.....	30	Medium	125–145	
2190.....	50	Heavy	180–200	
2250.....	None	Extra Heavy	240–260	
2310.....	60	Ultra Heavy	300–340	
3080.....	80	Aviation, Winter	.....	75–85
3100.....	95	Aviation, Summer	.....	90–100
3120.....	115	Aviation, Heavy	.....	115–125

(a) Chief Chemist, Engineering Experiment Station, Annapolis, Md.
(b) Materials Engineer, Bureau of Engineering, Navy Dept., Washington, D. C.

[1] Manufacturing Industries, August, 1928, by Comdr. T. J. Kelehea, U. S. N., and F. M. McGeary.

PROOF OF f-l-e-x-i-b-i-l-i-t-y

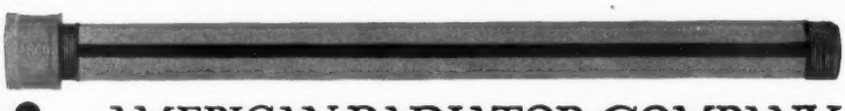
ARCO METAL

CAST IRON PIPE

VERTICALLY CAST **SEAMLESS**

• The above test illustrates clearly the flexibility of Arco Metal Cast Iron Pipe. This test was made to show that the pipe could be welded on supports over the trench and then lowered into position on the trench bottom. The height of the first support is four feet, and the distance from this support to where the pipe rests on the ground is approximately sixty feet. The section on the ground represents the pipe running into trench.

• The second section resting on two six-foot supports, representing the pipe out of the trench and above ground, was welded to the first section just behind the first support, making them one continuous length. The supported end was then lowered into the trench position, the pipe was put under pressure, and found to be perfectly tight.



• Because the iron in Arco Metal Pipe is alloyed with nickel and chromium, its texture is uniform throughout the wall of the pipe, which insures its superior corrosion-resisting qualities, either at the bottom of its thread or at any point on its surface. It can be cut and threaded with standard, hand, or power tools. The pipe is of the same dimensions as extra heavy wrought pipe and is furnished plain ends, threaded ends or beveled for welding. It can be welded at the factory or on the job.

Arco Metal Pipe is carried in stock and distributed by jobbers of plumbing, heating and mill supplies.

• AMERICAN RADIATOR COMPANY

Arco Metal Pipe Division

40 West 40th St., New York
1344 Broadway, Detroit
8th and Broadway, Cincinnati
816 So. Michigan Ave., Chicago
1294 E. 55th St., Cleveland
4201 Duncan Ave., St. Louis

RCO-ARCO-ARCO-ARCO-ARCO-ARCO ARCO-ARCO-ARCO-ARCO-ARCO-

Table 3

Chemical and Physical Characteristics	Naphthene Analyses New	Naphthene Analyses Used	Naphthene Work Value		Paraffin Analyses New	Paraffin Analyses Used	Paraffin Work Value	
Specific gravity at 60/60 deg. F.	0.924	0.928			0.899	0.904		
Viscosity S.U.V. at 100 deg. F.	212	262	Zero		150	172	0.3670	
130 " "	103	113	0.3690		87	91	.7705	
210 " "	44	46	.7730		43	44	.8840	
Viscosity average				0.3810				0.6738
Neutralization number	0.07	0.67		.3617	0.06	0.84		.1717
Precipitation number	None	0.07		.9356	None	0.17		.8297
Carbon residue, per cent	0.04	0.25		.8596	0.08	0.43		.7468
Average or "Work Factor"				0.6345				0.6055

affin and a well refined naphthene base oil for general service.

This conclusion was originally based upon data obtained on a test of a paraffin and a naphthene base oil[2], using the same type of endurance test machine as is now used for the work factor tests and is still considered to be sound. Each test was continued for 150 hours, 30 hours of which were at bearing pressures of 30, 60, 90, 120, and 150 pounds, respectively. The bearing pressure was increased at the end of each 30-hour period without machine shutdown. Table 3 shows certain chemical and physical characteristics, before and after use.

The work values have been added to the original data. Under the Work Factor Method, the naphthene base oil would not be regarded as acceptable since its viscosity increase at 100 F. exceeds 20 per cent, the maximum allowance. It should be noted, however, that the oils from both bases have approximately the same work factor when calculated without regard for rejection limits; also that very little improvement in the naphthene base oil is necessary to bring it within the acceptable requirements.

That these corrections can be made is shown by the data in Table 4 which gives the results of work factor tests upon four samples of naphthene oils, two of which were submitted by Exhibitor "A" and two by Exhibitor "B." Samples A2 and B2 show a decided improvement over samples A1 and B1, respectively. The principal difference between the two samples of each exhibitor's product is that in the improved product (samples A2 and B2), the unsaturated compounds have been appreciably reduced.

Typical paraffin and naphthene base oils are shown in Table 5. As the results shown by this table are a good average of those to be expected from well refined oils of either base, it would seem that the source of the crude is not a factor in judging the value of a lubricating oil. Proper treatment and refinement will give a good lubricating oil regardless of the crude base and the selection of a good lubricating oil is the object of the work factor method.

Sample P is the paraffin and sample N is the naphthene base oil in Table 5.

Effect of Temperature Control on Results

Does the apparent lack of control over temperatures and the variation in room temperature effect the results between two or more oils? Examination of the data on 118 tests made during a period of more than a year shows a variation in room temperature between 73 and 90 F. and an average room temperature of 78.3 F. A temperature variation of 17 degrees would doubtless be fatal in any strictly laboratory test where an exceedingly small quantity of oil is used.

For the endurance test, where a large quantity of oil is used and kept in rapid circulation, this variation in room temperature is of negligible effect, particularly in a test of 100 hours' duration. Any error due this cause is unquestionably much less

[2]O'Neill, Journal American Society of Naval Engineers, May, 1921.

Table 4

Chemical and Physical Data	Exhibitor A Sample A1 New	Exhibitor A Sample A1 Used	Exhibitor A Sample A2 New	Exhibitor A Sample A2 Used	Exhibitor B Sample B1 New	Exhibitor B Sample B1 Used	Exhibitor B Sample B2 New	Exhibitor B Sample B2 Used
Specific Gravity at 60/60 deg. F.	0.939	0.949	0.934	0.937	0.938	0.941	0.917	0.920
Viscosity, S.U.V. at 100 deg. F.	491	667	497	575	515	599	440	475
130 " "	190	237	190	213	202	222	181	189
210 " "	53	57	53	56	53	56	53	54
Neutralization number	0.06	0.63	0.06	0.63	0.06	0.55	0.06	0.20
Precipitation number	None	0.60	None	0.20	None	0.20	None	None
Carbon residue, per cent	0.17	0.71	0.08	0.43	0.05	0.24	0.03	0.12
Work Factor Data								
Viscosity at 100 deg. F.		Zero		0.192		0.184		0.602
130 " "		Zero		.395		.505		.779
210 " "		0.623		.717		.717		.905
Average (A)		.208		.435		.469		.762
Neutralization number (B)		.400		.400		.484		.852
Precipitation number (C)		.406		.802		.802		1.000
Carbon residue	0.690	.386	0.854	.639	0.909	.810	0.945	.911
Carbon residue average (D)		.538		.746		.859		.928
Total (A) + (B) + (C) + (D)		1.552		2.383		2.614		3.542
Average or "Work Factor"		0.388		0.596		0.653		0.885

Table 5

Chemical and Physical Data	SYMBOL 2110 Sample P New	SYMBOL 2110 Sample P Used	SYMBOL 2110 Sample N New	SYMBOL 2110 Sample N Used	SYMBOL 2190 Sample P New	SYMBOL 2190 Sample P Used	SYMBOL 2190 Sample N New	SYMBOL 2190 Sample N Used	SYMBOL 2310 Sample P New	SYMBOL 2310 Sample P Used	SYMBOL 2310 Sample N New	SYMBOL 2310 Sample N Used
Specific Gravity at 60/60 deg. F.	0.882	0.886	0.919	0.922	0.900	0.902	0.927	0.931	0.904	0.908	0.955	0.954
Viscosity, S.U.V. at 100 deg. F.	207	222	245	289	449	474	488	540	773	860	1050	1160
130 " "	106	110	112	127	196	204	189	206	314	343	318	347
210 " "	47	48	44	46	58	59	52	54	75	78	56	58
Neutralization number	0.06	0.28	0.06	0.12	0.06	0.36	0.06	0.20	0.06	0.40	0.05	0.42
Precipitation number	None	None	None	None	None	Trace	None	None	None	None	None	0.50
Carbon residue, per cent	0.04	0.10	0.02	0.04	0.24	0.40	0.03	0.07	0.84	1.29	0.02	0.15
Work Factor Data												
Viscosity at 100 deg. F.		0.683		0.102		0.722		0.467		0.437		0.477
130 " "		0.811		0.330		0.796		0.550		0.538		0.544
210 " "		0.894		0.773		0.914		0.815		0.800		0.821
Average (A)		0.781		0.402		0.811		0.611		0.592		0.614
Neutralization number (B)		0.768		0.937		0.684		0.852		0.642		0.614
Precipitation number (C)		1.000		1.000		1.000		1.000		1.000		0.505
Carbon residue	0.927	0.911	0.963	0.980	0.563	0.802	0.945	0.961	0.200	0.628	0.981	0.936
Carbon residue average (D)		0.933		0.971		0.682		0.953		0.414		0.958
Total (A) + (B) + (C) + (D)		3.482		3.310		3.177		3.416		2.648		2.691
Average or "Work Factor"		0.871		0.827		0.794		0.854		0.662		0.675

than the usual permissible error on laboratory analytical work. The bearing temperature is probably of more importance than the room temperature. Table 6 shows the average temperature conditions for the oils represented by each symbol.

Table 6

Symbol	Viscosity S.U.V. at 210° F.	Temperature, Deg. F. Room	Bearing	Rise
1075	40	77	175	98
2110	45	78	193	115
2135	49	79	199	120
2190	55	78	205	127
2250	61	79	209	130
2310	65	76	213	136
3080	79	78	228	150
3100	98	79	237	160
3120	121	78	246	168

Table 6 shows that the bearing temperatures gradually increase with the oil of higher viscosity as is to be expected. In each group, there is of course some variation in the bearing temperature. This is no greater than the variation in room temperature but it does not vary with the room temperature, i.e., an oil with a low room temperature may have a high bearing temperature and the reverse. This shows that control of final temperature is undesirable and would have a tendency to favor the poorer oils.

Two oils operating under identical room temperatures may attain as much as 20 degrees difference in the bearing temperature. This must be due in part to one of the oils breaking down more than the other and may be explained by the term "polymerization."

As the bearing temperature increases, the viscosity of a given oil at the bearing temperature becomes lower. Chart 1 shows *average* viscosity-temperature curves for oils of each symbol; also a viscosity-bearing temperature curve. The latter has been used to show that the maximum "increase in viscosity" of 20 per cent for oils of symbols 1075 to 2310 inclusive and 25 per cent for oils of symbols 3080 to 3120 inclusive originally established arbitrarily are sufficiently accurate for practical purposes, and that this requirement serves to act as a correction for temperature variation of sufficient scope without working a hardship on the oils of any particular base crude.

Further than this, temperature control, which would confine oils of the same viscosity range to exactly the same temperature throughout the test should not be attempted since this would not be done in any practical workshop test and would serve to defeat the chief aim of the test, which is to differentiate between the value of two or more oils.

Reproducibility of Results

Is the test reproducible and can similar results be obtained on two different machines and by two different operators? Actual series of tests to check results obtained on the four machines in use have not been made by reason of lack of time so that this question can be answered only by deduction at the present time. It is expected that a complete answer will be available within a year or so as plans of the Navy machines have been furnished to refiners and to consumers of oil in various sections of the country.

Thus far one of these outside machines is in operation and it has been reported that a work factor of 0.960 was obtained upon an oil for which the Navy obtained a work factor of 0.9445.

Two samples, each of three different brands of oil were tested simultaneously on two Navy machines with the following results; one oil gave work factors of 0.608 and 0.605, the other two oils gave work factors of 0.804 and 0.802, and 0.833 and 0.812, respectively.

In another case a refiner submitted three symbol 3080 and three symbol 3100 oils for test. In each group, one oil was to have a high work factor, one was to have a relatively low work factor and the other was to have an intermediate work factor. The results of this test are shown in Table 7, in which samples X, Y, and Z of each group were to be the low, intermediate and high work factor oils respectively. It is understood that sample Y of each group

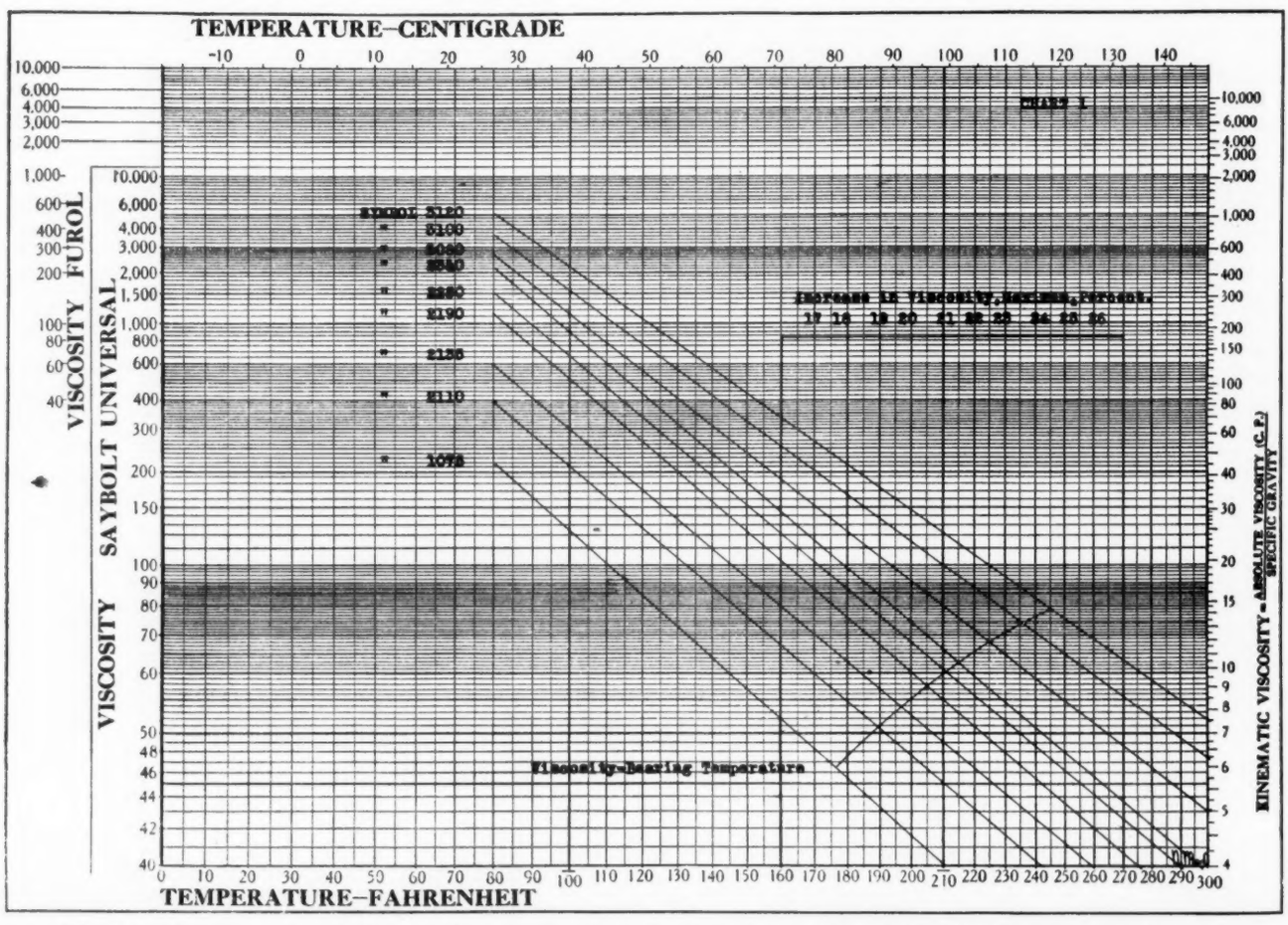


Chart 1—Average viscosity-temperature curves for oils of each symbol explained in the accompanying text

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Table 7

Chemical and Physical Data	SYMBOL 3080 Sample X New	Sample X Used	Sample Y New	Sample Y Used	Sample Z New	Sample Z Used	SYMBOL 3100 Sample X New	Sample X Used	Sample Y New	Sample Y Used	Sample Z New	Sample Z Used
Specific Gravity at 60/60 deg. F.	0.904	0.906	0.894	0.897	0.885	0.886	0.906	0.910	0.896	0.900	0.887	0.888
Viscosity, S.U.V., at 100 " "	972	1098	846	951	794	835	1345	1533	1238	1397	1271	1337
130 " "	384	423	353	390	336	352	508	570	485	538	516	551
210 " "	80	85	79	84	80	84	95	102	97	101	102	106
Neutralization number	0.06	0.31	0.06	0.25	0.06	0.25	0.06	0.31	0.06	0.25	0.06	0.25
Precipitation number	None	0.10	None	0.05	None	None	None	0.05	None	Trace	None	None
Carbon residue, per cent	0.71	1.41	0.50	0.79	0.15	0.20	0.96	1.47	0.87	1.04	0.18	0.26
Work Factor Data												
Viscosity at 100 deg. F.		0.482		0.504		0.793		0.441		0.480		0.792
130 " "		0.594		0.581		0.810		0.512		0.563		0.792
210 " "		0.750		0.747		0.800		0.705		0.835		0.843
Average (A)		0.608		0.611		0.801		0.553		0.626		0.788
Neutralization number (B)		0.737		0.800		0.800		0.737		0.800		0.800
Precipitation number (C)		0.901		0.950		1.000		0.950		1.000		1.000
Carbon residue	0.542	0.700	0.677	0.886	0.903	0.983	0.380	0.756	0.438	0.922	0.886	0.972
Carbon residue average (D)		0.621		0.781		0.943		0.568		0.680		0.929
Total (A) + (B) + (C) + (D)		2.867		3.142		3.544		2.808		3.106		3.517
Average or Work Factor		0.717		0.785		0.886		0.702		0.776		0.879

is a blend of the other two oils and from the results it may be assumed that this was approximately a fifty-fifty basis.

The preceding data show that reproducible results can be obtained on this type of machine; also that it discriminates very decidedly between poor and good lubricating oils. With regard to the latter, Table 8 shows results obtained on three oils having approximately the same chemical and physical characteristics before use, there being only slight differences in viscosity and carbon residue.

After the test there is quite an appreciable difference in each characteristic and the necessity for some test of this nature will be evident. The regularly used standard specification tests are of little value in showing the quality of lubricating oil until reinforced by a test similar to this, which will show the behavior of the oil in use in a measurable way.

Why should there be this difference, after use, among the three oils shown in Table 8? A number of explanations might be offered but it appears that the real reason could readily be shown by fractional distillation as will be indicated by some results taken from a report made in 1916 and never followed up. Considerable time has been devoted to perfecting methods of test for flash, fire, pour point, etc., without apparently considering that the perfected methods give only an average reading of the various fractions used to make up the oil under test and give little information as to its quality or value.

In the report referred to above, it was shown by fractional distillation that all lubricating oils are made of several easily separated fractions and that some have more "light" and "heavy" ends than others. Table 9 shows the viscosity, SUV, at 100 F. the flash point, and the specific gravity of the original oils and of the several fractions of each oil.

Table 10 divides the oils shown in Table 9 into three chief components: one having a viscosity of less than 140, one having a viscosity between 140 and 500, and one having a viscosity greater than 500 seconds, Saybolt Universal, at 100 F.

Considering the purpose for which the oils shown in Tables 9 and 10 are intended it is extremely doubtful if a single argument can be brought forward to justify the presence of such a large percentage of oils having a viscosity below 140 seconds and above 500 seconds. The lighter fractions are undesirable because in lubricating machinery they are exposed to conditions of heat, steam, and agitation which rapidly vaporizes them; the heavier fractions are undesirable because they are more liable to decomposition, producing in decomposition, tarry or carbon deposits and causing engine trouble.

The heavy fractions offset the light fractions and give the viscosity of a symbol 2135 oil. When mixed with the light fractions, the heavy fractions do not possess the properties of a "heavy" lubricating oil, that is, great molecular cohesion, but they temporarily possess the properties of a symbol 2135 oil differing from a good symbol 2135 oil in that they change rapidly in viscosity. This explains in part why some lubricating oils obtain a higher work factor than others; also why some oils behave better in service than others.

Table 8

Chemical and Physical Data	Oil No. 1 New	Oil No. 1 Used	Oil No. 2 New	Oil No. 2 Used	Oil No. 3 New	Oil No. 3 Used
Viscosity, SUV at 100 deg. F.	2263	3250	2545	3367	2102	2309
130 " "	678	899	760	945	673	729
210 " "	94	115	100	115	97	102
Neutralization number	0.06	0.84	0.06	0.43	0.06	0.22
Precipitation number	None	1.40	None	0.20	None	None
Carbon residue, per cent	0.22	1.25	0.17	0.95	0.19	0.46
Work Factor Data						
Viscosity Average		0.036		0.133		0.689
Neutralization number		0.178		0.611		0.831
Precipitation number		Zero		0.809		1.000
Carbon residue Average		0.747		0.802		0.891
Average or "Work Factor"		0.240		0.589		0.853

Table 9

Oil No.	No. of Fraction	Viscosity SUV at 100 deg. F.	Flash Point (deg. F.)	Specific Gravity	Per cent of Total
701	Original	205.0	395	0.887	100.00
	A	99.6	326	.8767	18.31
	B	128.0	390	.8803	18.38
	C	164.0	388	.8827	18.49
	D	250.3	388	.8911	19.64
	E	619.8	453	.9005	25.18
702	Original	275.0	354	.933	100.00
	A	91.2	316	.925	27.23
	B	190.0	372	.930	24.17
	C	414.0	390	.935	28.39
	D	2358.0	404	.943	20.21
703	Original	316.0	348	.925	100.00
	A	85.7	310	.915	23.44
	B	183.8	360	.921	23.13
	C	448.0	386	.932	25.93
	D	1557.0	406	.9324	27.50
704	Original	255.0	410	.904	100.00
	A	126.2	338	.896	22.48
	B	179.2	407	.900	22.27
	C	248.0	427	.904	20.97
	D	603.0	444	.9138	34.28

Table 10

Oil No.	Viscosity, Saybolt Universal, Seconds: Below 140 (percent)	140 to 500 (percent)	Above 500 (percent)
701	30.5	54.5	15.0
702	29.0	43.0	28.0
703	25.0	39.5	35.5
704	17.0	63.0	20.0

Work Factor versus Consumption

Does a high work factor oil show lower consumption than a low work factor oil? All data thus far accumulated point to this conclusion notwithstanding that consumption tests on actual machines in operation are most difficult to make particularly with respect to control of the variable factors and especially leakage and

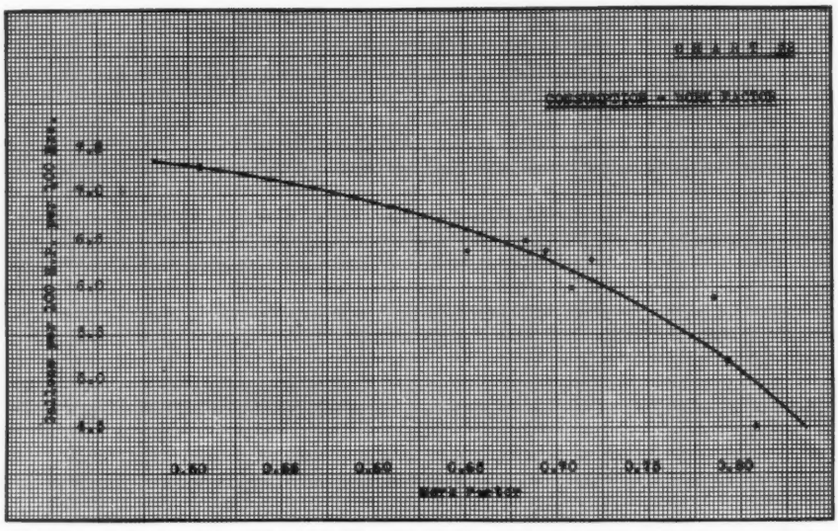

Chart 2—Consumption-Work Factor curve, data for which are given in Table 2

"throwing." Leakage is usually a big factor and this has nothing to do with the quality of the oil. Selection of an oil of improper viscosity will cause excessive leakage but it is hardly fair to charge this to the oil as is often done.

In an internal combustion engine both leakage and consumption are factors. Consumption would include oil that was burned, and when the burning temperature is present, a good oil is liable to burn as rapidly as a poor one. In fact, poor oils may resist burning to a greater extent than good oils by reason of their accumulation of heavy ends.

A high flash point in lubricating oils for internal combustion engines is of little effect since dilution reduces the flash point to about 150 F., in a short time, and this is well below the temperature of the cylinder wall with which the oil is in contact. Regardless of these known defects, practically all consumption tests of lubricating oils are made on internal combustion engines for the reason that the results can be obtained more quickly on machines of this character than on a turbine, for instance, where more than a year must elapse before a single test may be said to be complete.

Consumption tests of Symbol 3120 oils, of 15 hours' duration were made on a Wright Whirlwind, 9-cylinder, high compression aviation engine mounted on a test stand and equipped with a metal propeller of the following dimensions; length 6 feet, 8 inches, pitch 26 degrees at 28-inch radius. Table 11 shows the results on nine different lubricating oils.

The correction applied to the lubricating oil consumption was based upon tests made on the same oil at different periods in the life of the engine. Chart 2 shows a Consumption-Work Factor curve for the oils in Table 11 from which it may be observed that there is a rather definite relation between the work factor of a lubricating oil as established by the Navy method and consumption of an oil in an internal combustion engine.

Consumption is tangible but it is probably the least important factor in the value of a lubricating oil. Unnecessary wear of parts and consequent cost of repairs are of much more importance and these are rarely considered when dealing with the value of a lubricating oil.

A number of reasons have been shown for the use of a work factor method based on a practical test, so controlled as to assure oils of the same viscosity range being tested under similar conditions, but not so closely controlled as to destroy its usefulness. This method, while a radical departure, is a step forward, when considering the difficulties usually encountered in connection with the purchase of lubricating oil under specifications.

When oils are purchased under specifications alone, and where purchase from the low bidder is mandatory instead of discretionary, it creates a means to compare quality with price and permits selection of the most economical oil from the consumer's standpoint.

When oils are purchased by brand name and what the brand name stands for as determined by laboratory and operating tests, it not only serves as a yardstick to select the most economical oil for general use, but it eliminates the personal element in the decision as to acceptability of a given brand of oil.

Regardless of whether or not purchase is to be made by specifications or by brand name, the most useful purpose of the work factor method is to create an incentive for manufacturers of lubricating oil to produce and offer oils of higher quality than will just get by the minimum acceptable requirements. Such oils may cost more initially but their higher cost will be more than offset by their lower ultimate cost as reflected by consumption and more important by a general lowering of the cost of repairs.

Colonel Burrell Finds Russian Work Interesting

CLEVELAND—Col. George A. Burrell, of the Burrell-Mase Engineering Co., Pittsburgh, Pa., and author of a series of articles on modern refining practice published recently in NATIONAL PETROLEUM NEWS, who is now in Grozny, Russia, building natural gasoline and vapor recovery plants, reports that he is finding the work interesting and enjoyable.

Colonel Burrell states that American engineers receive many favors from Russian officials and engineers who are courteous and gentlemanly to a high degree.

He will be at home in the United States during July and August and will again return to Russia for an extended stay.

Shell Distributes Summer Gasoline

LONDON, June 5.—Shell interests have introduced a summer gasoline in England known as "Summer Shell." This is the first time that a major company in England has brought out a summer grade to give the best sort of motor performance in the 40-degree higher average temperature experienced here.

Table 11

Oil No.	1	2	3	4	5	6	7	8	9
Pressure, Barometer, inches	29.71	29.98	30.06	30.27	29.92	30.01	30.15	29.91	29.80
" Lubricating oil, lbs. per sq. in.	60.00	60.00	60.00	60.00	59.40	60.00	60.00	60.00	60.00
Temperature, Psychrometric, wet bulb, deg. F.	82.00	78.00	82.00	77.00	74.50	85.40	74.03	58.10	57.70
" " " dry " " "	74.00	69.75	75.00	66.00	68.50	71.70	61.80	46.80	49.00
" " " depression " "	8.00	8.75	7.00	11.00	6.00	13.70	12.23	11.30	8.70
" Lubricating oil, return, " "	113.00	113.00	114.00	108.00	108.40	117.30	104.90	98.00	95.70
" " " inlet, " "	113.00	108.00	113.00	107.00	107.60	116.90	104.90	96.00	95.00
Speed of Rotation, R.P.M.	1490.00	1504.00	1493.00	1492.00	1511.00	1515.00	1521.00	1573.00	1573.00
Gasoline used, Total weight, pounds	863.00	788.50	810.00	840.00	816.00	955.00	1060.00	1080.00	1069.00
Lubricating oil, Total weight, pounds	6.07	6.16	9.24	6.81	11.13	12.68	13.04	20.67	20.56
Horsepower Developed, Brake	104.49	113.93	111.67	113.51	116.87	114.39	123.90	136.90	136.70
Lubricating oil used per 100 H.P. per 100 hrs., Gallons (Corrected)	5.20	6.00	6.40	4.50	6.50	7.30	5.90	6.40	6.30
Work Factor by Endurance test	0.7935	0.7085	0.6505	0.8080	0.6835	0.5060	0.7855	0.6940	0.7200

Split-ups

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Chicago, Illinois

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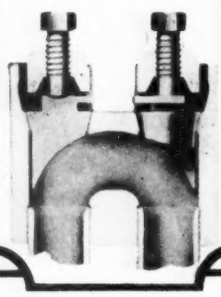
Frictionless

Notice the oil passage. There are no corners or reversals of flow direction. Throughout the fitting there is one continuous unbroken channel.

That is why, with the Ohiolock Frictionless, throughput is increased from 15% to 20% — giving greater efficiency and more production from your units.



The application of Ohiolock Frictionless Return Bends to pressure units is a definite assurance of increased throughput, trouble free operation and long life.

They combine a free flow feature with the quick acting Ohiolock closures and the erosion and corrosion resisting qualities of Hi-Steel.

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New Patents

Prepared by R. E. Burnham, patent and trade-mark attorney, 1343 H Street, N.W., Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.

May 13, 1930

REFINING

Distillation of hydrocarbon oils—Robert E. Wilson, Chicago, Ill., assignor to Standard Oil Co. of Indiana. Filed Apr. 4, 1925. No. 1,758,590.

Process of recovery of sulphur dioxide from oils containing the same—Giuseppe Cattaneo, Hilversum, Netherlands. Filed May 27, 1926. No. 1,758,595.

Process of cracking petroleum and mineral oils and their different fractions—Peter Nachtsheim, Barnsdall, Okla. Filed May 8, 1926. No. 1,758,618.

Method of purifying benzol—Charles F. Hagen, Geneva, N. Y. Filed Aug. 13, 1928. No. 1,758,661.

Process for producing liquid fuels—Alfred Joseph, Paris, France. Filed July 11, 1927. No. 1,758,796.

Process for resoling oil emulsions and reagents therefor—Frederick H. Penn, Dallas, Tex. Filed Dec. 28, 1925. No. 1,758,802.

Art of cracking hydrocarbon oils—John E. Bell, Brooklyn, N. Y., and Efwin W. Isom, Locust Valley, N. Y., assignors to Sinclair Refining Co., New York, N. Y. Filed Jan. 22, 1925. No. 1,758,818.

Process of preparing motor fuels—Frank A. Howard, Elizabeth, N. J., assignor to Standard Oil Development Co. Filed July 21, 1922. No. 1,758,898.

PRODUCTION

Bit-extension—John H. Abramson, Rockford, Ill., assignor to Greenlee Bros. & Co., same place. Filed Jan. 25, 1928. No. 1,758,069.

Means for pumping liquid—Paul H. Granger, Los Angeles, Cal. Filed Oct. 31, 1928. No. 1,758,153.

Method and means for cementing oil wells—Frederick W. Huber, Riverside, Cal. Filed Dec. 27, 1928. No. 1,758,156.

Oil-pump—Abram A. Kaplansky, Moscow, Russia. Filed July 16, 1929. No. 1,758,159.

Bore-hole pump—Charles Schaer, Langental, Switzerland. Filed May 12, 1925. No. 1,758,175.

Rotary-disk underreamer—Jacob S. Brown, Compton, Cal. Filed Apr. 27, 1927. No. 1,758,187.

Oil-well pump—Armais Arutunoff, Los Angeles, Cal. Filed July 5, 1927. No. 1,758,346.

Fishing-tool—Bettel M. Jensen, Redondo Beach, Cal. Filed Oct. 24, 1927. No. 1,758,364.

Method and means to pump oil with fluids—Wilfred D. Sawyer, Long Beach, Cal. Filed Jan. 9, 1926. No. 1,758,376.

Pumping system—Rachelle Jacuzzi, Berkeley, Cal. Filed May 9, 1927. No. 1,758,400.

Oil-well apparatus—Charles P. Mays, El Dorado, Ark. Filed Feb. 11, 1928. No. 1,758,453.

Product for treating drill-stem joints—De Ralph Frizell, Watson, Cal., assignor to Richfield Oil Co., Los Angeles, Cal. Filed June 7, 1927. No. 1,758,598.

Pump-operating mechanism—George Kammerer, Whittier, Cal. Filed May 24, 1927. No. 1,758,609.

Method of and bit for cutting a hole larger than the bit—John A. Zublin, Los Angeles, Cal., assignor to Universal Engineering Co., same place. Filed Mar. 20, 1926. No. 1,758,773.

Bit having vertical hammering action—John A. Zublin, Los Angeles, Cal., assignor to Universal Engineering Co., same place. Filed Aug. 10, 1927. No. 1,758,774.

Aspirating-head for flowing liquids—George McW. Williamson and Glasgow W. Haywood, Shreveport, La. Filed June 25, 1928. No. 1,758,812.

Rotary bit having reciprocating motion—John A. Zublin, Los Angeles, Cal., assignor to Universal Engineering Co., same place. Filed Sept. 8, 1925. No. 1,758,814.

Pumping-jack—Henry M. Jarvis, Winfield, Kans. Filed April 11, 1927. No. 1,758,838.

Cutter for rotary bits—John A. Zublin, Los Angeles, Cal., assignor to Universal Engineering Co., same place. Filed Sept. 8, 1925. No. 1,758,875.

MISCELLANEOUS

Service tower—Clarence J. Stirdivant, Huntington Park, Cal. Filed May 18, 1928. No. 1,758,131.

Outlet leg and valve for tank-cars—George J. Max, Warren, Ohio, assignor to Trumbull Mfg. Co., same place. Filed Sept. 14, 1928. No. 1,758,165.

Floating-roof tank—Sidney P. Johnson, San Francisco, Cal., assignor to Standard Oil Co. of California. Filed Dec. 8, 1926. No. 1,758,225.

Gasoline-service-station globe and support therefor—Edgar A. Gillinder, Philadelphia, Pa., assignor to Gillinder & Sons, Inc., same place. Filed Jan. 30, 1926. No. 1,758,660.

May 20, 1930

REFINING

Decolorization of hydrocarbons—Irving C. Carpenter, New York, N. Y., and Arthur R. Moorman, Tulsa, Okla., assignors to Contact Filtration Co., San Francisco, Cal. Filed Sept. 17, 1926. No. 1,759,343.

Absorption process—Clarence D. Coulter, Los Angeles, Cal., assignor to Southwestern Engineering Corporation, same place. Filed Aug. 16, 1926. No. 1,759,346.

Apparatus for cracking oil—Gustav Egloff and Harry P. Benner, Chicago, Ill., assignors to Universal Oil Products Co., same place. Filed March 28, 1921. No. 1,759,446.

Process of purifying hydrocarbons—John C. Black, Los Angeles, and John R. McConnell, Whittier, Cal., assignors to Richfield Oil Co. of California, Los Angeles. Filed June 7, 1927. No. 1,759,730.

Process of refining hydrocarbon oils—Earle W. Gard, Blair G. Aldridge, Hugh J. Multer, and Raymond T. Howes, Los Angeles county, Cal. Filed Sept. 12, 1927. No. 1,759,744.

Method of purifying hydrocarbon compounds—Thomas T. Gray, Elizabeth, N. J., assignor to Gray Processes Corporation. Filed Sept. 26, 1923. No. 1,759,812.

Process and apparatus for treating hydrocarbons—Thomas T. Gray, Elizabeth, N. J., assignor to Gray Processes Corporation. Filed March 24, 1925. No. 1,759,813.

Refining of hydrocarbons—Thomas T. Gray, Elizabeth, N. J., assignor to Gray Processes Corporation. Filed Aug. 9, 1926. No. 1,759,814.

PRODUCTION

Tubing cleaner and protector—John C. Armstrong, Fillmore, and Joseph E. Wallis, Los Angeles, Cal. Filed May 18, 1928. No. 1,758,995.

Holding-tool for use in wells—Charles L. Brewster and William P. Henry, Huntington Beach, Cal. Filed Dec. 11, 1927. No. 1,758,998.

Gas-anchor and sand-separator—William J. Dunlap, Long Beach, Cal. Filed March 13, 1929. No. 1,759,004.

Shroud for multistage pump-plungers—Lester C. Black, Los Angeles, Cal. Filed Jan. 24, 1928. No. 1,759,088.

Twist-off preventer (for use in connection with a drill-string and drill-bit)—John A. Zublin, Los Angeles, Cal. Filed June 11, 1928. No. 1,759,337.

MISCELLANEOUS

Cleaning fluid and method of producing the same—Bruce Farrington, Berkeley, Cal., assignor to Standard Oil Co. of California, San Francisco. Filed June 1, 1925. No. 1,759,155.

Meter for lubricant-dispensing apparatus—Stanley Duvall, Breckenridge, Tex. Filed June 17, 1924. No. 1,759,302.

Shut-off and indicator control for oil-dispensing apparatus—Arthur J. Granberg, Berkeley, Cal., assignor to Ralph N. Brodie Co., Oakland, Cal. Filed Jan. 3, 1925. No. 1,759,396.

Oil-carrying marine vessel—William Reed-Hill, Whitestone, N. Y., assignor to Aqua Systems, Inc., New York, N. Y. Filed Jan. 21, 1928. No. 1,759,644.

Pressure control for hydraulic oil storing and delivering systems—William J. Peters, New York, N. Y., assignor to Aqua Systems, Inc., same place. Filed Oct. 7, 1926. No. 1,759,662.

Means for controlling the flow in hydraulic oil storing and dispensing systems—William J. Peter, New York, N. Y., assignor to Aqua Systems, Inc., same place. Filed Feb. 5, 1929. No. 1,759,663.

System for storing and dispensing oil—William J. Peter, New York, N. Y., assignor to Aqua Systems, Inc., same place. Filed Jan. 31, 1929. No. 1,759,708.

Hydropneumatic reservoir for petrol fuels and the like—Marco Baccich, Fiume, and Carlo De-Filippi, Milan, Italy. Filed March 21, 1928. No. 1,759,727.

Means to prevent substitution of oil and the like products—Arthur E. Davenport, Maywood, Ill. Filed Feb. 10, 1928. No. 1,759,734.

Distillation of tar—Alexander A. MacCubbin, Montclair, and Joseph Zavertnik, jr., Harrington Park, N. J., assignors to Barrett Co., New York, N. Y. Filed Sept. 11, 1928. No. 1,759,816.

May 27, 1930

REFINING

Art of manufacturing paraffin—Clarence A. Ward, Linden, N. Y., assignor to Standard Oil Development Co. Filed Nov. 20, 1925. No. 1,760,096.

In the great Port Arthur plant of The Texas Company, temperature control plays an important part in producing the world-famous Texaco Golden Motor Oil.

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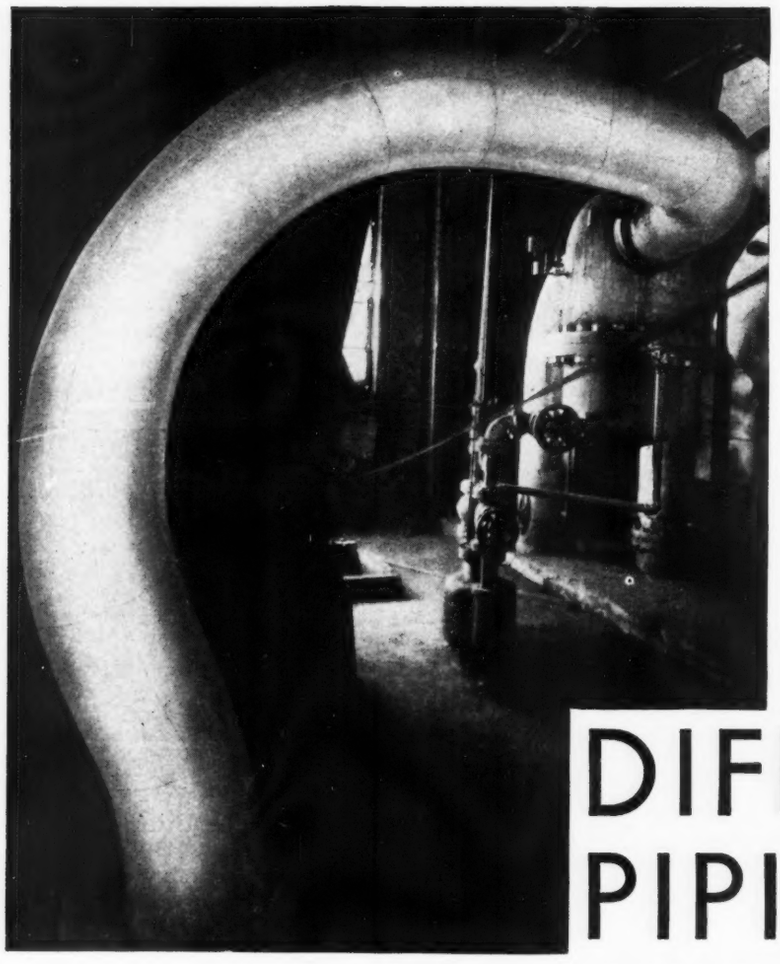

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LIMBERT PIPING

Visiting Around the Refineries

By Arch L. Foster

National Petroleum News

LEE VAN HORN, of the staff of the Smith Engineering Co. of Kansas City, spent a few days the last of May in the office of that company in Tulsa, conferring with Lee Petty on the activities of the company and the general refining construction situation in the Mid-continent. Men stationed in more northerly climes are making their spring trips into the southwest and returning as soon as possible to milder localities, before the famous southwestern sun begins to really get in his work of warming up this country.

In this locality the matter of showing a coat of tan does not necessarily mean a trip to the seashore or a winter spent in Florida or Los Angeles; merely that the wearer of the coat of tan has lived west of the Mississippi and south of the mythical Mason and Dixon for at least three months or so.

* * *

LAUREL OIL & REFINING CO., Laurel Montana, has started operation of its new combination topping and cracking plant.

This plant is of 1500-barrel per day capacity running on Oregon Basin crude, and in addition to gasoline and kerosene may produce either asphalt or coke as the operators desire. It was designed and built by the Smith Engineering Co.

* * *

THE UTAH OIL REFINING CO. has announced placing on the market a new gasoline, manufactured at its Salt Lake City plant, to be known as "Pep 88" gasoline. According to company officials this new fuel shows a much better distillation curve than that required for U. S. Motor gasoline, as indicated in federal specifications.

The manufacture of the new gasoline has been made possible by the erection at the plant of a new $100,000 rectification unit. The unit, according to J. C. Howard, president of the company, is the only one of its kind west of the Mississippi. The new fuel will be marketed in all territories covered by the Utah company.

* * *

HARRY C. FOWLER, acting chief engineer of the Petroleum Division of the U. S. Bureau of Mines, is spending several days in Bartlesville, Oklahoma, at the experiment station there, and in various parts of Oklahoma looking over the situation in the fields. It is rumored that a comprehensive engineering study of the Oklahoma City pool is being planned, to be begun as soon as division personnel are available to start the work, probably sometime during the summer of 1930.

Considerable expansion of the research work of the Bartlesville experiment station is planned. Two of the major problems in refining now under study at the station are showing interesting results and it is to be hoped that reports of these projects will be forthcoming soon. The problems deal with the treatment and fractionation of petroleum distillates, especially heavy oils, under H. P. Rue and Ralph Espach; and the synthesis of higher hydrocarbons from natural gas, under H. M. Smith.

W. H. CARROLL, veteran employe of the Waverly Oil Works, has been in charge of that company's filter house for 27 years. During that time Mr. Carroll has lost exactly one day from work. No vacation, no sick leave, no "morning after," just hitting the ball. And that one day was lost on a fourth of July, when the plant was entirely shut down; rumor hath it that the officials were forced even then to order him to stay away from the plant. It is suspected that very few men in the oil business, or any other, can show such an unbroken record of continuous service.

* * *

F. W. BRUCH, president of the Acme Manufacturing Co., Cleveland, announces the completion April 1 of a $75,000.00 fullers earth refinery building at Midway, Fla., which will double the capacity of the present plant.

The capacity of the finished plant will be 200 tons per day. It is an all steel structure designed by the Osborn Engineering Co. of Cleveland.

"Business last year was the best in the history of the company, and this winter instead of the usual seasonal drop is showing a constant increase," according to Mr. Bruch.

* * *

THE McColl-Frontenac Oil Co. some months ago installed three Gyro units in its Toronto refinery and the units are now being expanded to increase throughput and enable them to be operated continuously. The three "converters" are served by a single large bubble tower, with a Gray tower to remove polymers. Mr. Wendeln, of the Pure Oil Co. engineering staff, is aiding the company in making the new arrangements.

* * *

C. M. BASKIN, asphalt technologist for the Imperial Oil Refineries, Ltd. Montreal, recently returned from an extended trip into Colombia, Peru, Chile, and other South American countries. On this trip Mr. Baskin studied the road conditions in those countries especially with regard to second class highways, and conferred with highway officials and engineers regarding secondary road construction.

* * *

GANABELE, formerly chief chemist of the McColl refinery at Toronto, was made chief chemist of all McColl-Frontenac plants about March 1, with headquarters at Montreal.

* * *

DR. H. C. DICKINSON, Chief of the Power Division of the U. S. Bureau of Standards, and Chairman of the Technical Committee on Lubricants and Liquid Fuels of the Federal Specifications Board, sailed from New York recently, to attend the International Power Congress in Berlin.

While on the other side Dr. Dickinson will make a study of conditions in western Europe especially as regards automotive power development, and types of motor fuels in use there.

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St. Louis, Mo.

New Refining Patents

Sweetening Gasoline U. S. P. 1,754,649, April 15, 1930, Gentrey L. Rowsey.

MANY expedients have been proposed to overcome the disadvantages of the sodium plumbite method of removing malodorous sulfur compounds from gasoline and kerosene; but, in spite of its drawbacks, the plumbite reagent has still remained the best available under most operating conditions.

One of the major disadvantages of this method is the flocculent form in which the lead sulfide is finally precipitated; in its flocculent form the sulfide settles only slowly and is very difficult to separate from the oil, so that considerable losses occur in time and in oil yield. It has now been found that the plumbite reagent can be effectively replaced by a suspension of lead sulfide in caustic alkali solution, air being blown in very fine bubbles through the oil during treatment. If the oil contains dissolved hydrogen sulfide, this should preferably be first removed by a treatment with caustic alkali.

If the blowing is efficiently performed, using extremely fine bubbles, large volumes of air are not necessary; usually 10 times the oil volume, or even less, will be sufficient. Oils having a very bad odor are thoroughly sweetened by this treatment, and in many cases the color is also greatly improved. By using a dense powdered form of lead sulfide for the suspension in caustic alkali, quick settling of the solid is effected, and separation of the oil is easily accomplished, with minimum loss of oil. The lead sulfide can be recovered and used repeatedly.

* * *

Continuous Cracking Process. U. S. P. 1,756,019, April 29, 1930, Carbon P. Dubbs, Assignor to Universal Oil Products Co.

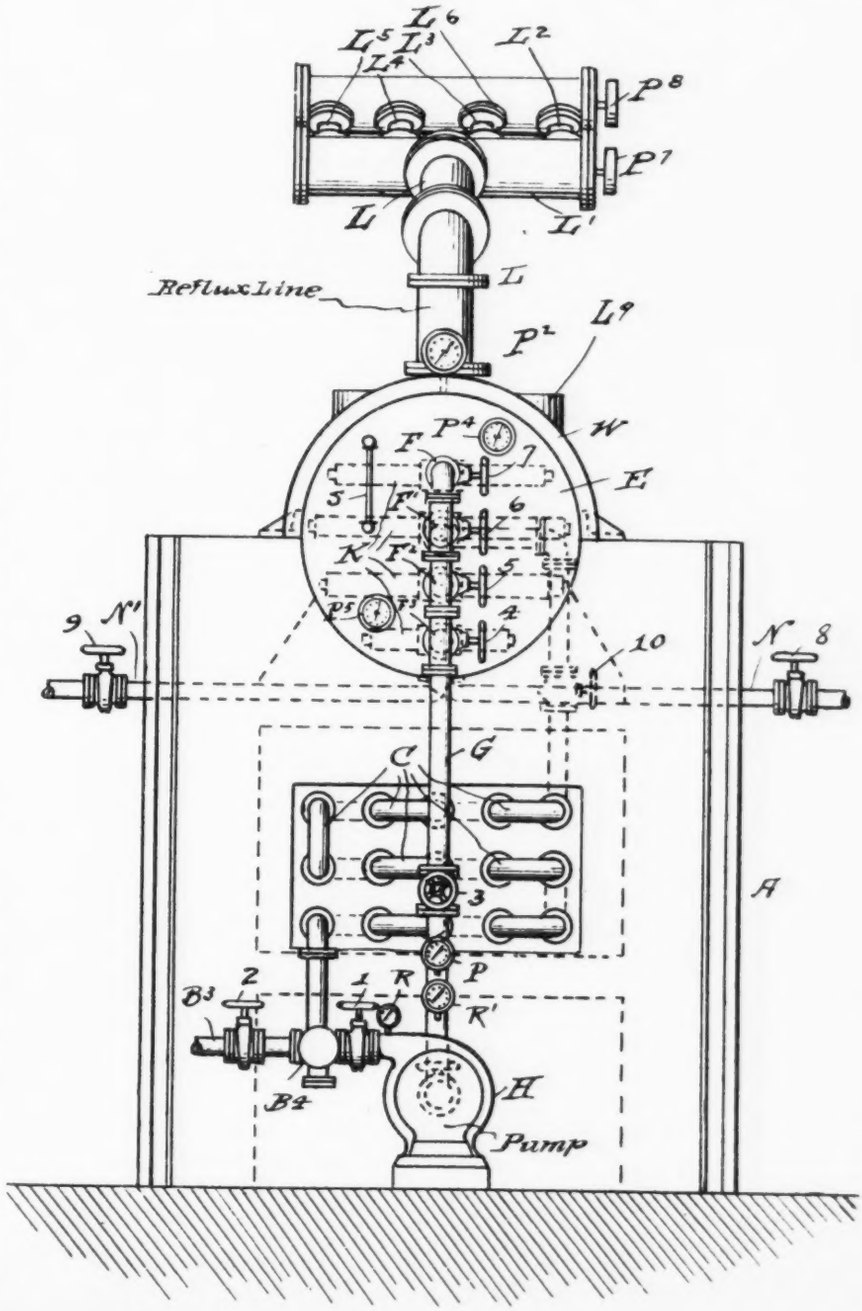
A NUMBER of different objects are specified for this invention, the principal ones being to provide a process and apparatus for pressure cracking in which carbon deposition is prevented until the oil has passed the cracking coil and reached a vapor chamber, to provide for continuous operation, and to provide for easy separation and removal of such carbon as is formed.

To accomplish this, the oil is pumped through heating coils C in the furnace A, at a sufficiently high velocity to prevent carbon and other solids from being deposited in the coils. From the heater coils the oil and vapors enter the vapor chamber E, where the velocity is much less and carbon settles out so that it can be withdrawn with the residuum.

Control of the operation, in accordance with operating conditions and the nature of the oil, is effected by adjusting the liquid level in the vapor chamber; for this purpose the vapor chamber has four valves (4, 5, 6, 7) at different levels so that a high or low oil level can be maintained. Since the actual cracking occurs in the vapor chamber, the ratio of liquid space to vapor space is an important factor.

Residuum is drawn off from E, continuously or intermittently, by the pump B, through line N or N_1 or both. Pressure may vary, in this process, within such limits as 50 to 500 pounds per square inch, and temperature from 400 to 1200 degrees F.

What is Claimed: A continuous process of treating hydrocarbon oils, by charging under pressure through a heating coil at a cracking temperature into an enlarged vapor chamber where substantial cracking occurs,



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by

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dephlegmating the vapors, collecting condensate from the dephlegmated vapors, continuously withdrawing residuum from the vapor chamber, and continuously diverting unvaporized light residual oil from the vapor chamber back into the stream of raw oil entering the heating coils.

* * *

Continuous Distillation. U. S. P. 1,756,032, April 29, 1930, Nathaniel E. Loomis, Assignor to Standard Oil Development Co.

THIS invention provides an improved apparatus for continuous vacuum distillation of petroleum oils, in which efficiency has been increased and operating costs lowered by greater utilization of the principle of direct vaporization. Indirect vaporization, by secondarily added heat, is depended on only for removing dissolved traces of lighter fractions.

The apparatus includes a heating coil, from which the vapor passes into a fractionating tower having vapor distributors and reflux tubes. The condensate from this tower runs to a second heating coil, from which it is distilled into a second fractionating tower of like construction to the first tower. This may be repeated; that is, a battery may have 3 or more heating coils and fractionating towers.

From the last fractionating tower the vapors pass to a condenser. The vacuum and feed arrangements are such that a low pressure can be obtained at the feed plate, so that vaporization is efficient even though plate-towers are used.

What is Claimed: The improvement in the art of distilling lubricants and the like, which comprises passing the hydrocarbons through a vaporization conduit and thence into a vapor-liquid separating zone, from which the lighter fractions are withdrawn as vapor and the heavier as liquid, heating the liquid fraction in a vaporization conduit and withdrawing the vapors evolved from the lighter components.

* * *

Vapor-Liquid Contact in Cracking. U. S. P. 1,756,887, April 29, 1930, Alfred Schwarz, Assignor to Petroleum Sand Products Corp.

IN THOSE cases in the art of pressure cracking in which release of all or part of the pressure and for high temperature is necessary to effect the desired reaction, adequate contact of the liquid phase with the vapor (formed at low pressures) is a difficult problem. It has been common practice in such cases to run the condensed oil over shelves or blades in a reflux tower; but this falls far short of the contact area actually needed. For most effective reaction conditions, the liquid should have such a large surface area that it would be exposed to its own weight of vapor.

A much nearer approach to this goal has now been achieved by use of steel borings, steel wool and like materials, which give several hundred times as much contact area as a tower equipped only with shelves. In an example, two towers are provided above the pressure still, each tower having a packing of steel wool. The oil and vapor pass up through one tower and then the other; and the upper tower has a spray head through which the steel wool may be sprayed either with fresh oil or with heavy residues from the still.

What is Claimed: The improvement in pressure cracking which consists in passing vapors from a pressure cracking zone upwardly, at successively lower pressures, through successive masses of a finely divided solid, on which the condensate is held in a minutely sub-divided state in which the liquid covers a very large contact area.

New Equipment

Merco Nordstrom Valve Co., San Francisco, has opened offices in St. Louis. The office is at 317 N. 11th St., managed by Leonard J. Kenard.

* * *

Lincoln Electric Co., Cleveland manufacturer of Linc-Weld motors and Stable-arc welders, has appointed Harold F. Kneen plant superintendent. Mr. Kneen was formerly assistant plant superintendent.

* * *

Phoenix Mfg. Co., Joliet, Ill., has purchased May 1 the steel tank, water treating and steel plate business of the Graver Corp., including the plant at East Chicago, Ind. This plant will be operated by the Phoenix company as the Graver Tank & Mfg. Corp., with these officers:

Edward N. Gosselin, president; F. C. Everitt, vice president and general manager; R. E. Meyer, secretary and treasurer; and P. S. Graver, W. F. Graver and H. S. Graver, each a vice president, with P. S. Graver as vice president in charge of sales.

The new company in thus enlarging its scope of operations, plans additions and improvements to its plant and service. The East Chicago plant has a capacity of over 40,000 tons of steel per year. The Phoenix company at present at its three plants at Joliet, Catasauqua, Pa. and Montreal, Que., has a capacity of over 30,000 tons of iron and steel products per year.

The new Graver Tank company will have branch sales offices at 28 E. Jackson Blvd., Chicago; at New York, Dallas, St. Louis and San Francisco. General offices will be at East Chicago, Ind.

The special features of these fittings are covered by Patent Application No. 315274, Oct. 26, 1928, series of 1925. Method of attaching these fittings onto tubes, by means of a jig, is covered by Patent No. 1746535.

The Latest KEY

Sectional Type Stream Line Flow

RETURN BEND

Quickly dismantled for cleaning of tubes. Has a high factor of safety.

Its design guarantees a minimum pressure drop through the return bends of approximately 25%.

Made of forged steel throughout, except the U-bend, which is made of cast steel. The U-bend is only part subjected to extreme wear, and is easily replaced. Replacement of single tubes is possible without the loss of other tubes.

Key Sectional Type Stream Line Flow Return Bends are made for all operating pressures and temperatures — and for every type of tube and pipe still.

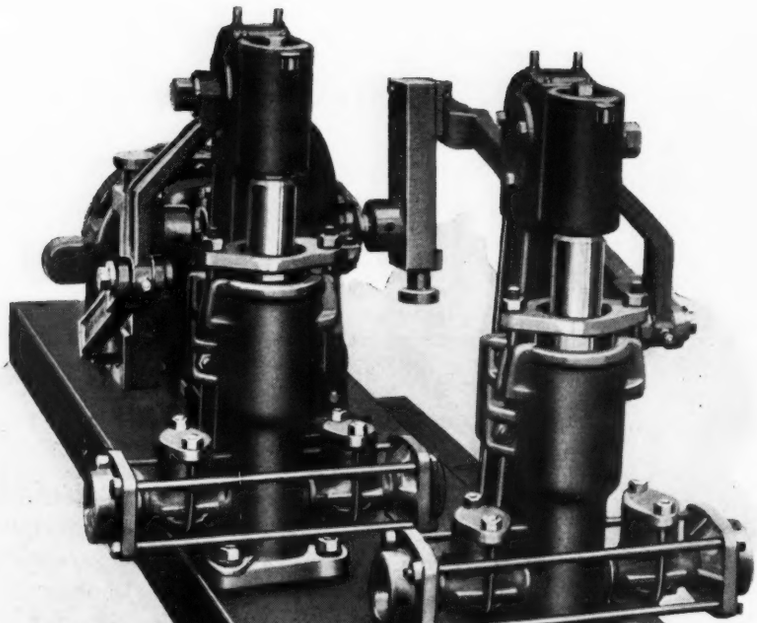
This fitting can be adapted for very small tube centers, and it is possible to form many complicated tube layouts by the use of other special fittings belonging to this series.

Write for complete information on Key Refinery Fittings.

Modern plant equipment and skilled workmen are responsible for Key Fittings. Here is seen a wing of the Key plant, with final inspection benches in the foreground. Each individual operation of Key Fittings is thoroughly inspected before passing on to the next operation.

KEY BOILER EQUIPMENT CO.

EAST ST. LOUIS, ILLINOIS, U. S. A.



View of new chemical proportioning pump

New Chemical Pump Unit Is Brought Out

CLEVELAND

THE Hills-McCanna Co. has just brought out a new Chemical Proportioning Pump, for feeding and metering highly corrosive acids. A thread adjustment stroke mechanism makes it possible to change almost instantaneously the quantity of chemical delivered, without the use of tools. Slight variations may be made without stopping the pump or interrupting its working. The fluid end of the pump is constructed entirely of duriron, including check valves, giving positive resistance to sulfuric acid in any concentration and at any temperatures likely to be met with.

This pump is especially recommended to give economical results in continuous treating systems, where the amount of chemical is accurately metered, and proportioned to the quantity of liquid treated. It is furnished in standard one-inch, two-inch, and three-inch sizes in either single or dual units, and is mounted as a complete unit, consisting of two pumps having independent suctions and discharges, motor and reduction gears, on a lead covered base. Further information is obtainable from the manufacturer.

Refinery Analysis of Okla. City Crude

TULSA, June 5.—Refining the Oklahoma City crude presents no new operating problems, in the experience of the Empire Oil & Refining Co. The Empire has been running its plant at Okmulgee on this crude for several months, without any more difficulties than are generally encountered in switching from one crude to another.

The crude compares favorably with any in the Mid-Continent in its percentage of lubricating oil recoveries. With the conventional hook-up, lube oil recoveries of as high as 25 per cent are not unusual. The following table gives the recovery percentages as found in plant practice.

Product Recovered	Per cent Yield
Gasoline 420 e.p.	31.00
Cylinder Stock	17.00
Gas Oil	32.00
Non-viscous oil (80-100 vis.)	1.00
Viscous oils (200-300 vis)	3.00
Wax (124-126 m.p.)	.5
Heavy absorption oil	2.00
Kerosene	11.00
Loss	2.3

The crude is a light green color, with an average gravity of about 38 degrees A.P.I. The Empire has operated on it in practically all of its refineries, and has experienced no difficulties at any of them. The sulfur content amounts to but 0.2 per cent, and corrosion is one thing with which the plants charging this crude are not troubled. In general, the Empire has kept the crude separate when making cylinder stock. When making cracking stock it is occasionally blended with crudes from other fields.

The oil has a fairly high wax content. A glance at the accompanying table shows it to be half of one per cent, on plant scale operation. When first operating on the crude, some small difficulties were encountered in obtaining a pressable wax distillate, but these were soon overcome. It is not known definitely just where the difficulty lay, but it was thought possibly that it was caused by shock chilling.

The B.S. and water are negligible, amounting to but two-tenths of one per cent on the average.

Pamphlet On Safe Cleaning Of Stills

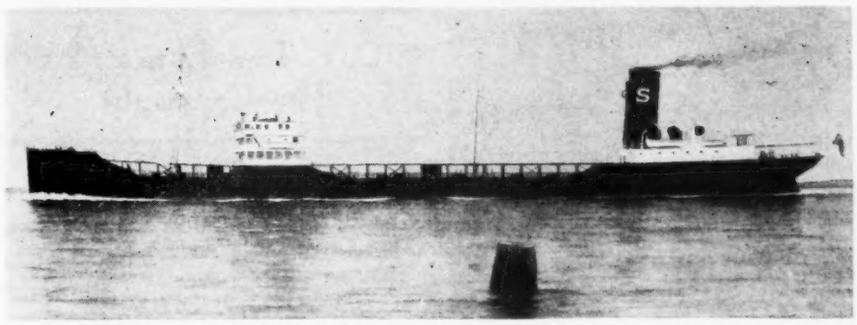
CHICAGO, June 6.—How to clean oil stills is told in a recent safe practices pamphlet published by the National Safety Council, Civic Opera Bldg., Chicago.

The pamphlet is entitled "Safe Practices in Cleaning Petroleum Stills." It has been drafted by F. L. Newcomb, supervising engineer, Standard Oil Development Co., New York. Mr. Newcomb was assisted by J. C. Bernd, safety director, Sinclair Refining Co.; F. W. Lau, safety director, Whiting refinery, Standard Oil Co. (Indiana); H. N. Blakeslee, petroleum representative, National Safety Council; and by the engineering committee of the petroleum section of the council, according to T. A. Burke, director of publicity of the Council.

Benzol Producers Organize

LONDON, June 6.—Producers of benzol in Britain have organized the N. B.A., Ltd., to conduct research and seek new markets and to standardize benzol-gasoline blends. Sir David Milne-Watson, governor of the Gas Light & Coke Co., world's largest gas supply undertaking, is president of the new research company.

ADVERTISING PAGES REMOVED



The new tank steamer "Virginia Sinclair" which will be added to the Sinclair fleet late this year

Sinclair Building Two Tank Steamers of New Design

CLEVELAND, June 5

SINCLAIR Consolidated Oil Corp. is building two new tank steamers of 8400-ton deadweight which include a number of new features. They are the first American tankers to be built with double longitudinal bulkheads instead of single center-line bulkheads. Delivery will be in October and November by the Bethlehem Shipbuilding Corp.

Methods and practices ordinarily used on naval cruisers and transatlantic lines have been applied to hull design as far as possible by J. G. Johnson, marine superintendent of the Sinclair Navigation Co., and J. K. Robinson, consulting engineer. The 5000 horsepower engines will permit a sea speed of 14 knots.

Advantages claimed for the new ships are greater stability, higher speed, virtual elimination of fire hazard, decreased evaporation losses, elimination of cargo contamination and reduced construction and operating costs.

Other features are summarized by the Sinclair engineers as follows: "Summer tanks eliminated. Isherwood bracketless system of construction. Iron rivets throughout, to decrease corrosion. Sprinkling system covering entire deck. Cargo tanks fitted to withstand higher pressures. Vents at top of mast and fitted with flameproof spark arresters. Special methods of cleaning tanks. Vertical compound duplex steam pumps of high capacity; three pump rooms and three cofferdams, with separate lines and pumps to each cargo compartment. Double reduction gear turbines; steam generated in water-tube boilers at pressure of 400 pounds and with 200 degrees of superheat; engine room auxiliaries electrically operated; feed water heated in series heaters. Gyrocompass; mechanical steering device; full radio equipment for sending and receiving; compass direction finder; radio telephone connected with various living compartments of ship; submarine signal. Isolated hospital."

Each vessel will have a capacity of 67,000 barrels of cargo, 1,000 tons of bunkers and considerable space for barreled goods and package freight. They will be equipped to carry casinghead gasoline, and will ordinarily carry as many as seven grades of refined petroleum products in bulk without risk of pollution.

One vessel is to be christened the "Virginia Sinclair" and the other "Harry F. Sinclair, Jr."

Tanker Reconstruction Method Saves Time

LONDON, June 6.—One of the most interesting of shipyard repairing or reconstruction jobs is now approaching completion at the yard of Palmers Shipbuilding & Iron Co., Ltd., Hebburn-on-Tyne, England. This firm docked the Anglo-American Oil Co.'s 12,000-ton tanker Cadillac and cut the hull across in two places, leaving a large midship section, which is to be scrapped. Meantime, and well in advance of the drydocking operations, the firm has constructed a new midship section, which was launched from the shipyard in the ordinary way.

The next stage was the floating out of drydock of the bow section and the old midship section, and the floating in of the new midship section as well as the old bow section. The three sections are now being joined up so as to form the complete ship.

The docking and cutting operations were carried out in two weeks, and it is anticipated that all the work will be completed within seven weeks, instead of the four months which would have been necessary if the new section had been built in drydock.

I. C. C. to Investigate Motor Transportation

WASHINGTON, June 5.—An extensive survey of truck and bus transportation in competition with or by the railroads is to be undertaken by the Interstate Commerce Commission. The investigation has been ordered under the title of "Co-ordination of Motor Transportation." The title itself does not tell much but it means much to those who know of the commotion in transportation circles caused by unregulated motor competition.

It is probable that competition of privately owned trucks, such as oil company tank trucks, will be investigated just as extensively as the common carrier trucks.

Upon completion of the investigation the commission may recommend legislation for the regulation of trucks and busses in interstate commerce.

The commotion in transportation circles is due to the fear that motor competition is taking business from the railroads at tariffs less than the actual cost of the motor transportation.

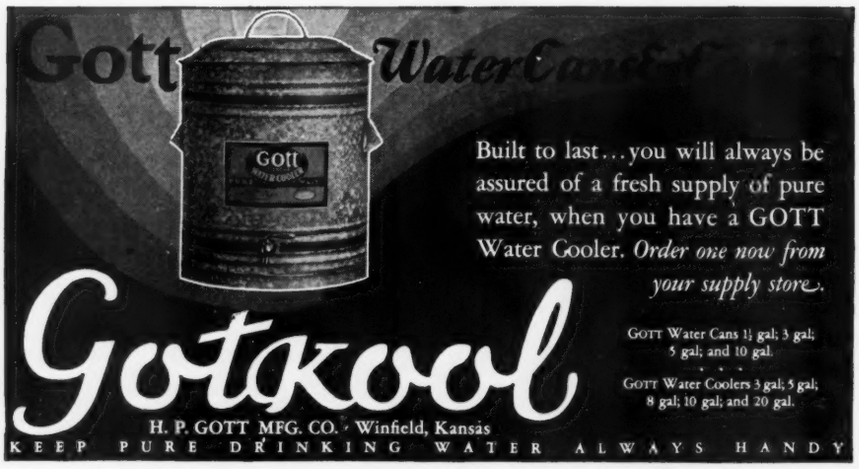
Opposition to the regulation of the truck is founded on the inborn belief of the average man that he is entitled to use the highways for the transportation of his goods in his own vehicle without restraint on account of possible endangerment of railroad transportation or of the regulated common carrier by truck.

California tried to prevent the use of its highways by private carrier trucks in competition with regulated common carrier trucks but the Supreme Court of the United States overturned its law on that subject. Congress can regulate, however. Railroads have not retaliated against the tank truck except to a limited extent around San Antonio, Texas.

There is no profit in undertaking to hide the fact that the investigation is for the benefit of the railroads. The railroads are themselves to be investigated. They have added to their activities, in various parts of the country, both bus and truck service, primarily to protect themselves from motor competition and, secondarily, to intensify the competition among themselves.

Activities among the railroads in the secondary phase of the matter is probably the immediate cause of the investigation.

CHICAGO, June 6.—L. A. Stewart has joined the Henry H. Cross Co., Chicago, as manager of its tank car lubricating oil sales department. Mr. Stewart formerly was with the Fort Dearborn Refining Co., here.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The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C. trade-mark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"CARBO-SOLVE." Ser. No. 296,996. Thomas & Hochwalt Laboratories, Inc., Dayton, Ohio. For preparation for use in the removal of carbon deposits from internal-combustion engines and similar motors.

"PURE OIL," and representation of a seal. Ser. No. 289,251. The Pure Oil Company, Chicago, Ill. For illuminating oils, motor-fuel oils, lubricating oils, lubricating greases and fuel oils.

"E-Z SHIFT," and representation of gears. Ser. No. 294,059. Henry H. Cross Company, Chicago, Ill. For petroleum gear lubricant.

"QUIET-IT." Ser. No. 294,663. The Better Way Products Company, Charleston, S. C. For chemical compound for removing carbon.

"APEX METER." Ser. No. 296,137. Natl. Recording Pump Co., Dayton, Ohio. For self-measuring gasoline-dispensing apparatus.

"DELCO GAS." Ser. No. 294,060. Delco-Light Company, Dayton, Ohio. For apparatus for generating and supplying gas.

"INSURALOK." Ser. No. 292,640. Standard Lock and Measure Corp., New York City. For locks for tanks for containing gasoline and other liquids.

"RICHFIELD," representation of airplanes, etc. Ser. No. 289,477. Richfield Oil Company of California, Los Angeles, Calif. For gasoline.

"BLACK BABY," and representation of a negro's head. Ser. No. 295,631. Francis Edward Martin, doing business as F. E. Martin & Co., Lake Bluff, Ill. For lubricating-oil compounds.

"STANAVO," and representation of an eagle-airplane. Ser. No. 296,830. Stanavo Specification Board, Inc., New York City. For refined semi-refined and unrefined oils and greases made from petroleum, etc.

Representation of many uniformed soldiers. Ser. No. 296,878. New York Lubricating Oil Company, New York City. For lubricating oils for machinery, engines, motors and dynamos.

"KEMSOLENE." Ser. No. 292,704. American Mineral Spirits Co., Chicago, Ill. For naphtha.

"LACTOL." Ser. No. 292,706. American Mineral Spirits Co., Chicago, Ill. For naphtha.

"VARNO." Ser. No. 293,126. American Mineral Spirits Co., Chicago, Ill. For naphtha.

"NAPHTHOLITE." Ser. No. 293,126. American Mineral Spirits Co., Chicago, Ill. For naphtha.

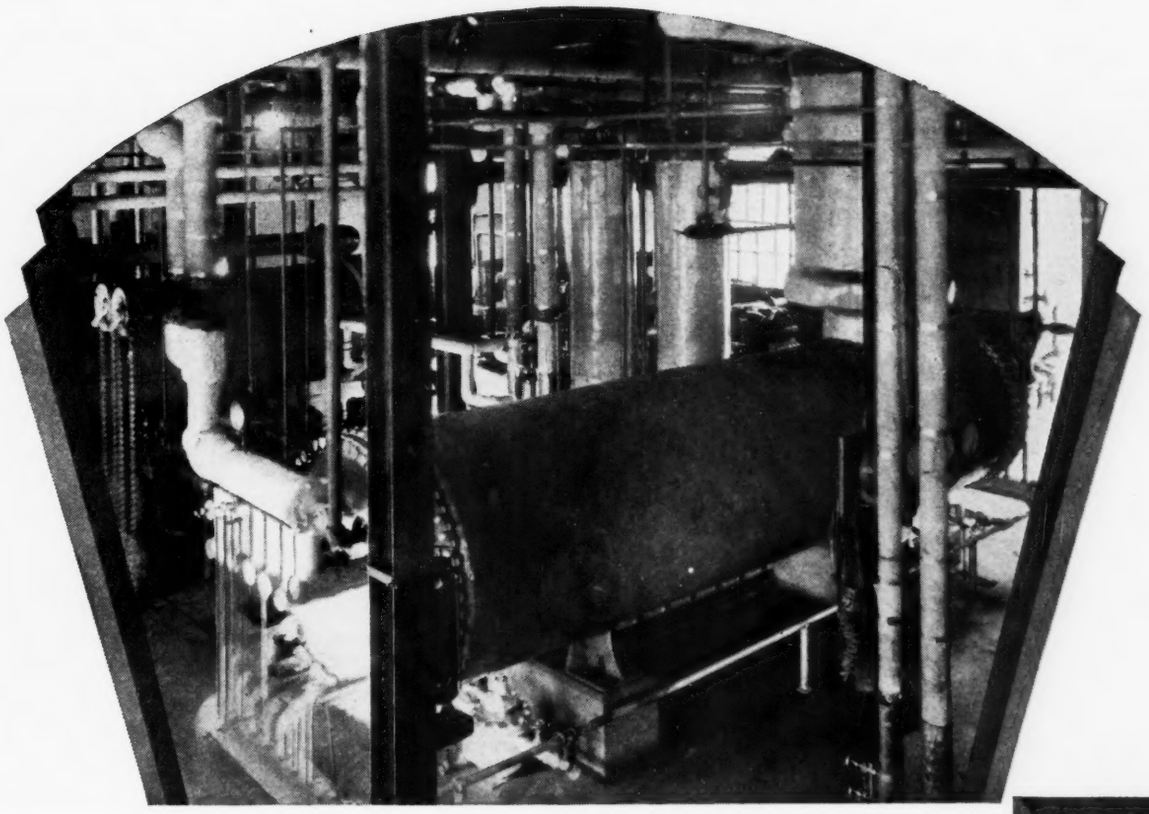
"LUBRI-TASGON." Ser. No. 294,177. Polygon Products Co., Boston, Mass. For penetrating oil and rust-dissolving lubricant.

"CRAVER-RUN-IN-OIL." Ser. No. 294,845. Craveroiler Company of America, Philadelphia, Pa. For lubricating oils.

"ZOOM-GAS." Ser. No. 297,499. The Scioto Petroleum Company, Columbus, Ohio. For gasoline.

"BJ." Ser. No. 295,886. Byron Jackson Co., Los Angeles, Calif. For oil-well tools—namely, bits, drills, well elevators, etc.

"TIME-O-STAT." Ser. No. 296,457. Time-O-Stat Controls Company, Elkhart, Ind. For corrugated-metal bellows and temperature, pressure, float, and time-responsive devices, oil and gas burners, etc.



Always abreast of refining demands

STEP by step, as temperatures dropped, Carbondale met the need,—20°,—30°,—40°, and lower when necessary but with full brine capacity always. Carbondale Refrigerating Systems have led the way.

On a cost of production basis plus an assurance of dependability that continues year after year, makers of America's finest lubricating oils have chosen Carbondale refrigerating and refinery machinery. 30 years of practically continuous use has been recorded by Carbondale installations—and they are good for many more.

To those who are seeking lower temperatures, better heat transfer or increased capacity, Carbondale offers the cooperation of its refinery engineers.

THE CARBONDALE MACHINE CO.
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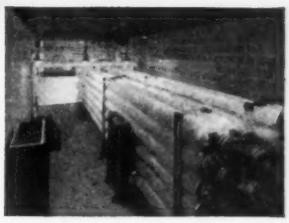
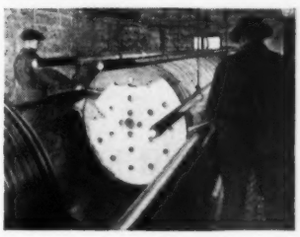
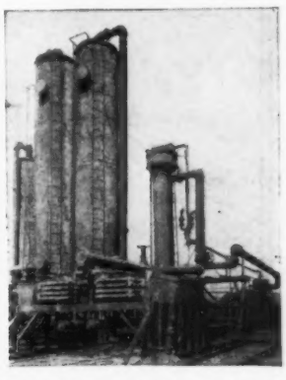
CARMACO *for Refiners*



For over 35 years Carbondale Chilling Machines have been serving refiners. They are designed so as to provide for continuous operation and the delivery of a uniform, homogeneous distillate for pressing.



Carbondale Filter Presses and Filter Press Blankets go hand-in-hand in satisfying the strenuous demands of modern refinery methods.



Carbondale Heat Exchanger installation.

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No. 260—Contains twelve 2-oz. long bottles and five ½-oz. tall grease jars..... **$3.20**

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Germany Buys 50% of Oil Imports from U. S.

WASHINGTON, June 5.—Germany is one of the world's largest importers of petroleum products and one of the best customers, John W. Frey, of the petroleum section, minerals division, Bureau Foreign and Domestic Commerce, says.

In world imports Germany is the second largest importer of gas oil, lubricating oil and crude oil; the third largest importer of gasoline, and eighth largest importer of kerosene.

In 1929 crude oil imports of 630,115 barrels exceeded those of 1928 imports by 261,413 barrels. The principal sources were Mexico, from which she imported 50 per cent; Venezuela, 41 per cent; and the United States, 5 per cent.

Heavy gasoline imports totaled 2,042,000 barrels in 1929, compared with 1,246,000 barrels in 1928. The leading sources of heavy gasoline imports in 1929 were: Russia, 36 per cent; Rumania, 20 per cent; United States, 19 per cent; and Venezuela, 12 per cent. United States exports to Germany of heavy gasoline showed a large loss.

Light gasoline imports amounted to 6,071,000 barrels in 1929, compared with 4,124,000 barrels in 1928. The United States furnished 61 per cent of this product, Rumania 11 per cent, and lesser percentages by other countries.

Kerosene imports gained only 130,000, to 1,156,000 barrels in 1929, the United States furnishing 67 per cent.

Gas oil imports increased from 2,064,000 barrels in 1928, to 2,670,000 barrels in 1929, the United States supplying 63 per cent, Venezuela 23 per cent and Russia 7 per cent.

Germany's imports of greases, vaseline and other mineral lubricants totaled 657,838 metric tons in 1929, 254,482 metric tons of which came from the United States.

Paraffin wax imports declined from 17,870 metric tons in 1928 to 14,566 tons in 1929. Of this amount the United States shipped 10,023 tons.

About two-thirds of the crude oil treated by the 30 refineries in Germany is of domestic origin. These refineries, which are located around the oil port of Hamburg, in Hanover, and in the lower Rhine country near Cologne and Dusseldorf, refined 601,000 tons of petroleum products in 1928, compared with 582,000 tons in 1927 of which gasoline was 241,000 tons, kerosene 3899 tons, lubricants, 247,500 tons; gas, fuel and other oils, 51,500 tons; paraffin, vaseline, etc., 11,400 tons; and residues 46,200 tons.

Only about 300 tons of synthetic gasoline are being produced in Germany daily. Benzol is an important blending agent in gasoline, and 440,000 tons were used in 1928 as automotive fuel. One fourth of this amount was used unmixed and the remainder blended.

A total of 1,200,000 tons of motor fuel was consumed by Germany in 1928, 75 per cent of which was benzol mixture.

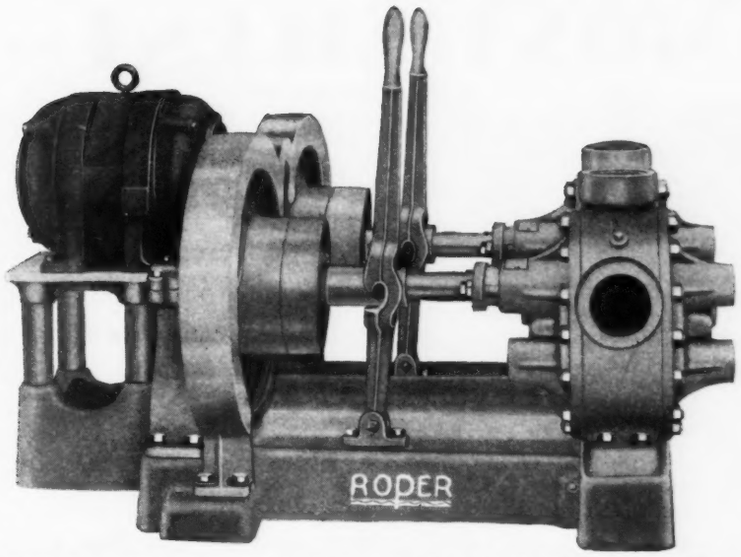
Would Prohibit Imports Of Oil Into U. S.

WASHINGTON, June 6.—Protection of American producers and refiners of crude petroleum by prohibition of imports of crude petroleum or the refined products is proposed by Representative Stone, Republican, of Norman, Okla., an independent oil operator and banker. His bill, which recites that it is intended "to relieve unemployment, to protect American labor, to encourage industry and to regulate foreign commerce," has been referred to the committee on mines and mining. Usually bills of that sort are sent to the committee on ways and means, because the articles covered by it are on the free list of the tariff law, the ways and means committee handling tariff matters.

In support of his bill, the representative in whose district the new Oklahoma City development lies, said that the settlement of the controversy about oil lands in Mexico portended renewed and larger shipments from that country at a time when the federal oil conservation board was doing all it could to curtail both production and refining in this country. He says he introduced the bill in aid of the labor and oil situations in this country. He proposes to allow free entry of foreign country, under bond, for refining here and export.

The bill would allow the President to permit importation of crude when furnished by a statement from the Secretary of Commerce showing that unrestricted crude output of the country was less than demand. Only enough would be allowed in to make up the deficit.

CLEVELAND, June 5.—Boeing Air Transport Co. has obtained a temporary injunction restraining the state of Nebraska from collecting its 4-cent gasoline tax on motor fuel used in airplanes in inter-state traffic. The application for a permanent injunction will be tried in the district court of Lancaster county.



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Bulk stations and refineries all over the world are cutting costs — saving demurrage — and increasing profits by handling oil and gasoline with Roper Rotary Pumps. Your own plant can do the same. Engineering advice on your pumping problems is rendered free —and with no obligation to you.

Catalog 58N contains complete details on both hand and power pumps for petroleum products. *Write today for your copy — Catalog 58N.*

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ALMOST SILENT—

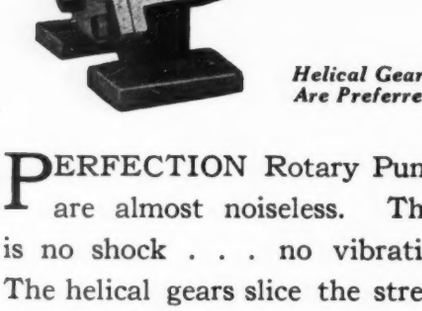
Helical Gears Are Preferred

PERFECTION Rotary Pumps are almost noiseless. There is no shock . . . no vibration. The helical gears slice the stream of liquid passing through the pump instead of splashing into it head on. This means a steady, continuous flow.

Even after years of service, Perfection Rotary Pumps operate efficiently. The pressure of the liquid passing through the pump balances evenly with the end-thrust of the helical gears and minimizes wear.

There are only two moving parts in the Perfection Rotary Pump . . . the helical gear rotor and the helical pinion.

Members of the engineering profession have long recognized helical gears as preferable to straight gears for power transmission. The Perfection Rotary Pump is the only one on the market with helical gears. Write today for complete information.



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52 Years Experience · It Counts

New Equipment

Aro Equipment Corp., Bryan, O., has purchased the Bryan plant and property of the Service Station Equipment Co. It is producing its new line of automotive and industrial lubricating equipment there.

About a year ago J. C. Markey, president of the new company, and I. B. Nielsen, vice president, who headed the Service Station Equipment Co. when that company was making exclusively Eco automatic tire inflating equipment and air compressors, purchased the Aero Liquid Meter Corp. of California. The latter marketed its equipment on the West Coast for several years.

The Aro company will manufacture two distinct types of portable high pressure lubricators; air and electrically operated portable gear greasing dispensary units, and complete equipment for multiple unit lubricating systems for stationary installation in super service stations and garages.

A recently improved high pressure lubricating gun, model G-1, develops 7500 pounds grease pressure on 125 pounds of air pressure, the company says. The unit has only two moving parts and its design is simple and practical. It is equipped with a high pressure woven steel hose designed to withstand the rapid hammer blows under which the grease is shot by the gun.

The gun, the company says, is an exclusive engineering development of the Aro company. It is the first successful application, it claims, of the simple riveting hammer principle to high pressure lubricating equipment and is covered by patents and applications.

* * *

Pittsburgh Equitable Meter Co., Pittsburgh, Pa., maker of gasoline meters, has added L. W. Mahaffey to its sales staff to work out of the Columbia, S. C. office. His territory will include Alabama and part of Florida. He is a graduate civil engineer from the University of South Carolina.

* * *

The Highland Body Mfg. Co., Cincinnati, O., is making new, improved coupe-type cabs for motor trucks designed for dependable service, pleasing appearance, and comfort and protection for the driver. They are made with modern military front, all outside surfaces being steel. They are equipped with pockets for shipping books, have extra heavy self locking segment and flexible dash for mounting on trucks without cowls.

Among the prominent users of Highland cabs are the Standard Oil Co. of New York, the Shell Petroleum Corp., the Atlantic Refining Co. and the U. S. Army, the company says.

Universal Lubricating Devices, Inc. 597 Butler St., Etna-Pittsburgh, Pa., has placed on the market a one-man grease dispenser, a chassis gun and spray gun. The dispenser, known as model No. 400, calibrates the grease in pints, which is the process of measurement known as cubic contents, making all grease delivery uniform in volume. This prevents any inaccuracies in sealing such as those which occur when guns have been sealed for a certain consistency of grease in pounds, and a change in weight of greases is made by the retailer which would call for sealing at every change in order to be accurate.

This grease gun tells the exact amount of each sale and the exact number of pints left to be sold.

The spray gun is for lubricating springs of motor cars and trucks and such places for which no provision for lubricating has been made but which need it. It is also for cleaning motors and removing road tar from chassis parts, fenders and bumpers. The spray is operated by compressed air through a valve in the head which goes to the bottom of the tank and comes out through fine openings against the bottom.

* * *

Wayne Co., Fort Wayne, Ind., manufacturer of oil marketing equipment, has made several changes among members of its New York and Chicago offices.

A. D. Carriger, who has been for the past four years vice president and director of sales at Fort Wayne, has been transferred to New York City to head eastern trade. Mr. Carriger succeeds the late George Nicholson. A. L. Sobey manager of the Chicago office, has been transferred to New York to become assistant to Mr. Carriger.

E. J. Little, who has been sales manager for the past year and a half, takes over the general sales work. W. L. Kennedy is assistant sales manager.

R. A. Dempsey who has been district manager of the New York office, is transferred to Chicago where he will be manager.

* * *

Erie Meter Systems, Inc., Erie, Pa., has published a bulletin on its meter pumps, saying that gasoline marketers have bought over 30,000 of these pumps in the past eight years that the company has been in business.

New 1930 models are described as having these features: quart size sight glass with union connection and price sign; bell ringing attachment on all meters; price computing dials on all meters including fractional cent; and separate light switch on all pumps. Displacement type of meter can be furnished on any model at small cost, the company says.

The bulletin illustrates its tandem model, its masonry insert model for canopy columns or masonry housing, and wall panel meter unit for remote control pump system.

Extra Profits *for the* Oil Jobber!

HUNDREDS of jobbers throughout the country are marketing Freedom refined motor oil under their own brand name. In each case they're pocketing extra profits because of repeat sales and fatter margins.

The demand for 100% Pennsylvania motor oil is becoming stronger each year. Scientific data plus the testimony of motor experts are making it increasingly difficult to sell the motorist anything else.

We'll make up any grade of motor oil (Sharples Process) according to your own specifications. Or we'll gladly recommend oil of specifications that have been thoroughly tested by this half-century-old refinery.

Whether your requirements call for tank cars, compartment tank cars or drums, we'll fill your order with equal dispatch. Meanwhile, ask us for prices.

Guaranteed 100% PURE PENNSYLVANIA OIL

Permit No. 31

THE FREEDOM OIL WORKS CO.

FREEDOM, PA.

Refineries at FREEDOM and CORAOPOLIS, PA.

Also available for immediate shipment

140/150 Viscosity Sharples Bright Stock
85/90 Viscosity Sharples Bright Stock
100% Pennsylvania Neutrals
600 Steam Refined
650 Steam Refined
600 Flash Steam Refined
630 Flash Steam Refined
Freedom Filtered Kerosene Oil

FO 304

The attractive service station of the Glore Oil Co., in Danville, Ky., patronized by tourists because of its appearance. The door on the right hand side of the station is to the ice dock

Appearance Attracts Tourist Trade, Kentucky Jobber Finds

By E. L. Barringer
N. P. N. STAFF WRITER

DANVILLE, Ky.

TOURISTS patronized his service station because they liked its looks—cleanliness and the business like appearance. W. S. Glore, Sr., operating the Glore Oil Co., Danville, Ky., discovered this last summer when asking strangers why they drove in.

The same answer was given to questions asked by W. S. Glore, Jr. Many tourists said they were sold on the station's appearance. They reasoned that if the oil company had gone to the expense of erecting and maintaining such a station the company would be careful in handling the customer's car.

The Glores were new in the oil business last summer and they wanted to know why their station was patronized when there are many along the highways soliciting the motorist's business. To find out the father and son stayed around the station for several months, inquiring of the tourist as to why he stopped. Appearance was the deciding factor in patronizing the station, so most of the tourists told them.

For the townspeople the station has an added attraction over its competitors—it has an ice dock. Ice is available as long as the station is open, and is sold by the attendants. A small room at the rear of the station was insulated for ice storage. It holds forty 300-pound cakes of scored ice.

The door to the ice dock is at the end of the station towards the side street, and customers do not block the traffic lanes around the gasoline meters. Mr. Glore operates an ice company in Danville so the service station is a convenient dock, for the people and for the ice company.

As an oil man the older Mr. Glore is one year old, but his service station in Danville has attracted much attention throughout Kentucky.

As a retailer he is many years old. This is his thirty-third business. Besides the oil company he operates now a coal and an ice company in Danville. His other activities include being a director in the Kentucky Petroleum Marketers' Association, a member of the Kentucky code of ethics committee, and a Rotarian. And he finds time to watch the stock market, and travel in Europe.

When Mr. Glore decided to enter the oil business about a year ago he looked around for a good available station site. A location was purchased on a main highway, three lots facing the main street and four lots facing a side street. The location was open for business under local zoning laws, but a church across the side street objected. Ministers of most of the churches joined in fighting the proposed station, but the oil company won. That decision put an added responsibility on the oil company to erect an attractive station.

Mr. Glore, Jr., designed the building. It is of red face brick trimmed with stone, and has a slate roof. A feature of the interior is the fireplace. In a rear corner is an ice station.

All unnecessary signs were kept off the station grounds for the benefit of the neighbors as well as not to detract from the appearance. Floodlights are used to illuminate the station at night. An added touch to the exterior decorations are two antique lamps from a carriage placed on the front of the building. These were given by Mrs. Glore, Sr.

In the basement of the building, reached through a stairs in the rear, are two Dayton air compressors. Each has a 60 gallon tank. Air is used for the tire standards, grease guns, lift, and the gasoline storage tanks. Four 1000-gallon gasoline storage tanks are buried. Gasoline is kept under air pressure of 8 to 10 pounds.

On the ground level floor are the rest rooms, ice house, oil storage tanks, and the attendant's room. On the opposite side to the ice dock is an outdoor entrance to the ladies

ADVERTISING PAGES REMOVED

rest room. Lubricating oil is stored in eight Fry dispensers.

In the center of the front wall is a large window. The fireplace is in the center of the building, back of the window. Mr. Glore, Sr., suggested the fireplace. It has been well accepted by the tourists for getting warm by an open fire on cold days.

Gasoline is sold through four Sharpsville double outlet meters. Two are on an island in front of the building; and one on either side of the building.

The station was placed near the street. There is one drive between the pump island and the sidewalk, and a double drive between the island and the building. In the far corner of the lot is a Globe drive-on hoist for lubrication. The remainder of the location has several houses owned by the oil company, but the land is available for future expansion.

Straight Line Operations In Grease Making Plant

INTERNATIONAL Lubricant Corp., formed last year at New Orleans to sell the jobbing trade, has now placed its plant in full operation. With present equipment, says William H. Saunders, president, the plant has annual capacity on a nine-hour day of 8,000,000 pounds. A complete line of greases is manufactured and marketed.

"Our building is of steel construction and designed to permit a maximum amount of light," says Mr. Saunders, who adds that it was so planned that extensions could be made without changing the present arrangement of equipment.

The equipment, he says, is arranged to give straight line operation. The receiving department is at one end of the plant and the shipping department at the other; materials starting at the receiving end and moving through the plant to the LCL shipping dock or the carload shipping dock, as the case may be.

Steam-jacketed cooking kettles are on the second floor of the plant. Contents of the cooking kettles empty by gravity to the mixing kettles on the first floor. The mixing kettles are placed about six feet off the floor, allowing ample head room.

All liquid raw materials are stocked in a battery of tanks about 125 feet from the main plant. Beyond these tanks are located a high pressure boiler and pumps for transferring material from storage to the building. The boiler furnishes steam for the cooking kettles.

Power for agitating the kettles is derived from an electric motor suspended from the first floor ceiling, which runs a line shaft that in turn drives the agitators in the mixers and kettles.

The first floor of the building is of reinforced concrete and is of car-door height. The second floor is of wood on steel girders. Besides Mr. Saunders, the International includes in its official directorate E. E. Linthicum and Harold M. Fraser, both of whom are vice presidents. W. H. Rinkle is sales manager.

Richfield Pegs Away at Speed in Ads

NEW YORK, June 6.—Taking advantage of the modern mania for speed, the Richfield Oil Corp. of New York has built its series of advertisements in New York City newspapers around speed. Early this year, that company entered the retail gasoline business here making California gasoline available to New York motorists at its own filling stations for the first time.

"Follow the choice of the champions!" these ads urge. One ad lists racing drivers and aviators who have used or are using Richfield gasoline.

Another one tells of the recent long distance ocean flight from New York to Bermuda of Yancey, Alexander and Bouck, and still another is devoted to telling of the new transcontinental air record established by Col. and Mrs. Lindbergh in April. Two New York cab companies use Richfield gasoline exclusively, one ad points out.

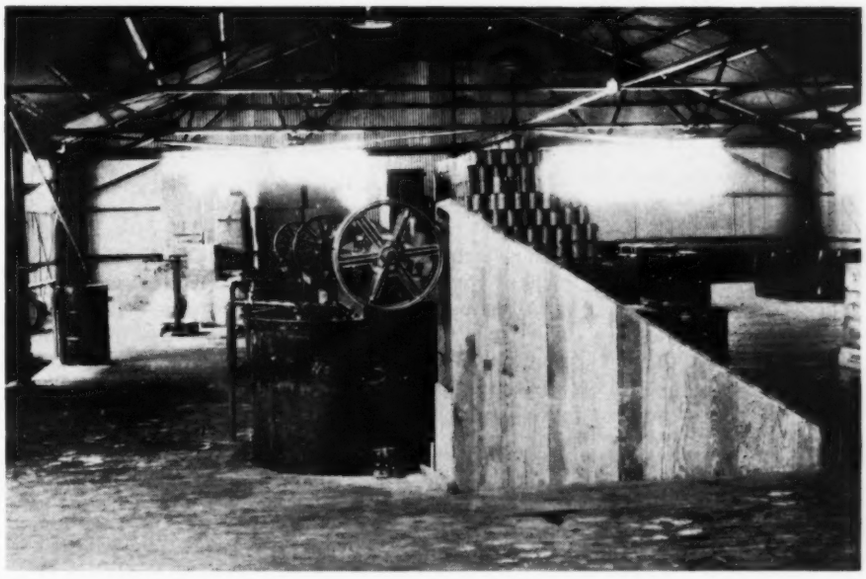
A recent one in the New York Evening Post talks to Broadway in typical Broadway language. It compares Richfield gasoline to a star of Broadway.

"Another California star on Broadway," the ad says. "From eastern obscurity to stardom in less than a year. Richfield, California's famous gasoline and Richlube, 100 per cent pure Pennsylvania motor oil . . . attain that ambition of all stars—their names in electric lights on Broadway." That ad is illustrated with a night scene looking north on Longacre Square where a large Richfield electric sign has been erected on top of Chevrolet, Squibb's Dental Cream and Camel signs.

Union Metal Offices Move

CLEVELAND—The Union Metal Manufacturing Co., Canton, Ohio, has moved its Philadelphia office to 110 E. 42nd St., New York City. E. B. Comfort, eastern district sales manager at the Philadelphia office will be located in the same suite with W. A. Daunt, New York sales manager for the same company.

RICHMOND, Va., June 5.—The Downtown Service Station, of Roanoke, Va., has changed its name to the Alleghany Gas and Oil Co., it has been announced. C. Edwin Michael is president of the new organization and J. P. Vaughan is vice president and general manager.



View of second floor showing cooking kettles and part of can storage. Cooking kettles extend through the floor, contents emptying by gravity into mixing kettles on first floor

LET IT RAIN! ~

There'll Only Be Pure Clean Oil in a TOKHEIM Motor Oil Tank!

"Shut 'er off, Jack! That's enough demonstration for me!"

"I hope to tell you! It never rains any harder than this."

"Meaning that we could put our Tokheim Motor Oil tanks right out in the open where oil-hungry motors would take the hint!"

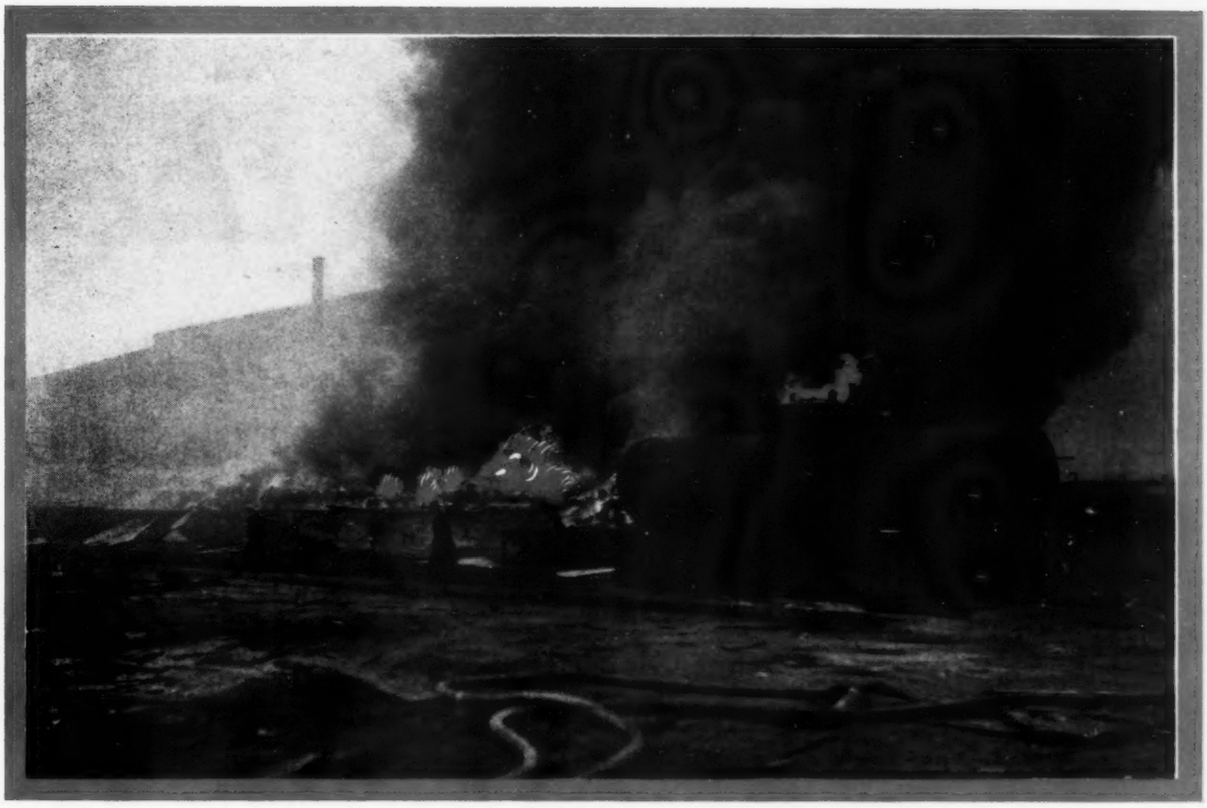
"Correct! Display is as profitable for our business as it is for any other!"

The Tokheim Motor Oil Unit illustrated is Cut 433, requiring a floor space of but 10⅛"x22⅛". Tank holds 30 gallons of oil. Equipped with quart pump and Anti-Drip Nozzle. Cut 463 is identical, but equipped with Automatic Spring Return Drip Tube.

There are 18 Tokheim Motor Oil Outfits from which to make your selection—all characterized by the highest quality materials and construction—and priced to return the greatest profits on your oil storage and handling investments. Write today for our new Motor Oil Equipment booklet which you should read before you buy *any* motor oil equipment.

Tokheim Oil Tank & Pump Co.

Fort Wayne, Indiana



A burning bulk plant caused by an accident in unloading gasoline

Attention to Small Details Necessary To Prevent Bulk Plant Fires

By N. J. Martens*

(Presented before Mid-West Safety Conference, Chicago)

WHEN tank cars are unloaded they should be protected from the possibility of electric sparks at dome opening at the time of insertion of the down pipe of the overhead unloaders, due to the presence on the side track of stray electric current. This stray current is usually found in the neighborhood of electric railway tracks and particularly where the electric railway crosses the tracks of steam roads nearby the bulk station. Current may also stray from signal circuits of steam railways or from lighting or power lines.

To protect plants from such stray current or static where overhead unloading is done, rail bonds should be brazed to all rail joints of both rails of the side tracks serving the bulk plant within at least one half car length of both sides of the overhead unloader. A strand of bare annealed Copper Cable should then be brazed to the base of each rail and carried across to the pipes of the overhead unloader. This wire should then be soldered to ground clamps which have previously been sweated to the overhead unloader.

When this installation has been completed and a tank car is spotted in front of the overhead unloader ready for unloading, it will be seen that all eight wheels of the tank car are standing on a bonded section and this section is electrically equalized with the pipes of the overhead unloader. Then if stray current should flow it will follow the path through the cable rather than follow up through the tank car thence to the unloading pipes and down to the piping system. Therefore, no electrical sparks can occur at the top of the car when the down pipe is being inserted or withdrawn.

Frequent inspection of bonds should be made as the constant vibration and expansion of the inter-rail apertures is a strain on the bonds, which in time wears them out. We have learned that it pays to make this inspection every morning inasmuch as some petty thief has found a market for our bonds and has been seen fit to go to the trouble of pulling them from the rails during the night.

*Standard Oil Co. of Indiana, Chicago, Ill.

Unloading Tank Cars

With reference to fire prevention during the unloading process itself, I believe my method of advice will be in the nature of an outline of safe and unsafe practices.

1. If it is necessary to drive the manhole cover of the tank car dome, a wooden or non-ferrous hammer, i.e., one made of copper, bronze, or brass should be used.

2. If it is necessary, as is generally the case, to use a bar to loosen bolts or lugs, do not use steel or iron.

In Union there is

You're 'way ahead with WOLF'S HEAD . . .

100% Pennsylvania
Doubled Distilled
Sharples Dewaxed
High Flash Test
Low Cold Test

Guaranteed 100% PURE PENNSYLVANIA OIL

Permit No. 19

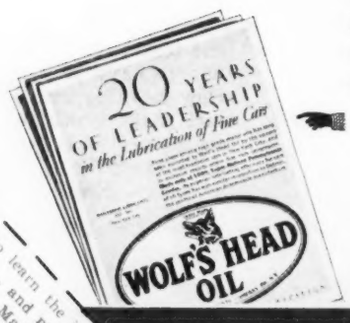
TRADE MARK REG. U.S. PAT. OFF.

WOLF'S HEAD MOTOR OIL

A REVELATION IN LUBRICATION

SIGNALLING the merger of Wolverine Lubricants, Inc., and Empire Oil Works, Inc., the progress of WOLF'S HEAD MOTOR OIL has been marked by recent activities that already have made rapid strides in increasing business for dealers.

For 20 years WOLF'S HEAD OIL has been the acknowledged leader in the automotive, aviation and motor boat fields—used by Lindbergh on his recent sensational trip to South America and return. It is a superb 100% Super-Refined Pennsylvania oil, made finer than ever as the combined product of two great refineries.



LOOK FOR THE WOLF'S HEAD AD IN THE SATURDAY EVENING POST.

Let us show you how you profit with *Wolf's Head*

WOLVERINE LUBRICANTS CO., INC.
51 Madison Avenue New York City
Division of
WOLVERINE-EMPIRE REFINING CO.

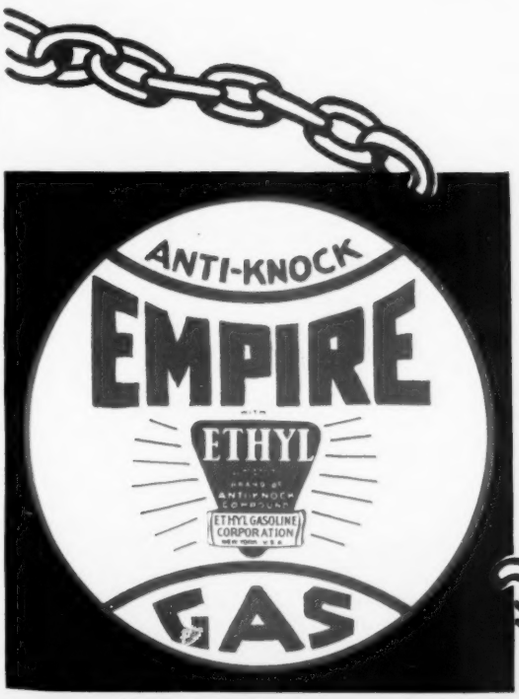
Clip this coupon to learn the interesting sales story of WOLF'S HEAD OIL . . . and mail it to Wolverine Lubricants Co., Inc., 51 Madison Ave., New York City.

Name .....
Company .....
Address .....

WOLVERINE-
REFINING

eis STRENGTH

and another leader with EMPIRE ETHYL



TO sell an ethyl gasoline is really a necessity and a privilege but it's the foremost ethyl *quality* gas that wins highest sales. That's what you get with **EMPIRE ETHYL**, a fuel proving it has far more than a high anti-knock rating — high test — low end point — low initial — a road performer that you can rely on.

OTHER EMPIRE PRODUCTS

EMPIRE Motor Grade Gasoline, Rubber Solvent, Naptha, Kerosene, Fuel Oil, Wax, Steam Refined Stock, Filtered Stock, Bright Stock, Neutrals and Greases will interest you.

EMPIRE OIL WORKS, INC.
Oil City Pa.
Division of
WOLVERINE-EMPIRE REFINING CO.

-EMPIRE COMPANY

Clip this coupon and mail to EMPIRE OIL WORKS, INC.
(Check your interest)
[ ] EMPIRE ETHYL franchise
[ ] EMPIRE MOTOR GAS franchise
[ ] OTHER EMPIRE PRODUCTS

Name .....
Company .....
Address .....

Substitute a strong oak bar. There is a theory prevalent that a spark caused by steel against steel is not enough to be dangerous in the presence of vapors. Let's not attempt to corroborate this theory by taking a chance on an explosion. In this connection, care is suggested in the handling of the dome cover itself when it is being jostled about in the process of removal and replacement.

3. A dome should not be left open during the unloading process. Sparks which may be omitted from passing locomotives or other sources might play havoc should they chance to drop into an open tank car. To protect ourselves from casualty from this source, it is a good practice to place water moistened burlap or canvas around the loading spout. Better still, a standard adjustable cover of wood has been designed by some companies for this purpose. If burlap or canvas is used, care must be taken to see that they are kept moist lest they become a hazard rather than a protective measure.

4. When it is necessary to bring a light into use for the purpose of inspecting or looking inside a tank car only an approved flashlight should be considered at all. The folly of using a lantern or match is obvious. Almost as much to be condemned is the use of electric extension cords for this purpose. Short circuits too often occur creating sparks causing fire and explosion. Even when using an approved flashlight the contact to turn it on and off should be made only in the open and not inside the dome.

5. It is probably scarcely necessary for me to mention that smoking by employees working about the tank car is to be forbidden. In legal phraseology, smoking on or near bulk plant premises is "malum prohibitum." No leniency should be extended to the employee who sees fit to defy our code in this respect. It is our duty to eject the right-of-way trespasser and the casual loafer who chances to loiter about our premises with nothing else to do but contentedly observe operations with a lighted pipe, cigar or cigarette in his mouth with no regard as to where he shall throw the ashes or butts when they've passed the toothpick stage.

The Pumphouse

The pumphouse should be the pet or hobby of every safety man.

1. First of all the direct current or single phase commutator type motors are undesirable equipment in a pumphouse. This type of motor is more likely to spark and ignite gasoline vapors than is the polyphase motor. Where a single phase motor is used, precaution should be taken to the extent of keeping the pumphouse well ventilated and of closing the motor in a separate compartment within the pumphouse building so that vapors will be less likely to come into contact with sparks emitted from its brushes.

If the motor is partitioned from the rest of the pumphouse and the shaft projects through the partition, the fit around the shaft should be close and snug. Better still is an arrangement whereby the motor is totally enclosed. As far as a recommendation is concerned, however, we feel comparatively safe only with a polyphase motor which can approvedly be housed in the pump room without the above precaution as to the single phase motor.

2. The day of the ramshackle pumphouse is long since passed. For its purpose the wooden pumphouse is nothing more than a fire trap. Its floor and walls become saturated over a period of time so that the only element lacking to set up a perfect hazard is a vagrant spark or perhaps only a good hot summer day.

3. Pump houses should be as well ventilated as a tuberculosis sanitarium sun porch. Good cross-ventilation can be obtained only by leaving an opening at both ends of the pumphouse of about 1½ feet square. This opening can be protected against the entrance of foreign matter by small sectioned wire. Any vapor generated in the pumphouse will then find easy and quick exit.

4. Do not allow leaky valves and connections to remain in a state of

When fires do occur at bulk stations the loss in property as well as that caused by the interruption of business are quite large

disrepair. Constant attention should be given to valves, connections, joints and pipe lines to detect leaks and when they are found they should be immediately repaired by packing or whatever is necessary to stop the leak. A pumphouse floor should be as dry as that of your office. Too often leaks are allowed to go unrepaired as long as the pump itself works or until the man in charge thinks he will have time to do the work.

5. Do not wait until you chance to catch the motor brushes sparking to think about replacing them. This chance spark in the proper atmosphere may be the explanation for a catastrophe. Watch the brushes for wear and when you see that they've gotten to the point where sparking is imminent, replace them.

6. Perhaps our greatest source of protection lies in the installation of perfect wiring and proper location of the proper type of switch. Our engineers and safety director have recently outlined specifications for electrical equipment in hazardous places at bulk plants. We pass the most universally applicable of these specifications on to you as follows:

(a) By "hazardous locations" is meant locations where a dangerous concentration of gasoline or other inflammable vapors may exist, either in normal operation or by accident (such as overflowing of a tank, breaking of a hose or pipe). This will cover such typical locations as pumphouses.

(b) Service entrance equipment, panel boards and cut out cabinets must not be installed in hazardous locations.

(c) Fuses and thermal-cut-outs must not be installed in hazardous locations.

(d) All wiring shall be done with rubber-insulated wire in galvanized rigid conduit made up with vapor tight joints and fittings.

(e) No slip joints, no no-thread nipples or threadless fittings should be used.

(f) All conduit fittings shall be galvanized iron or brass.

(g) All lighting fixtures shall be vapor proof with threaded fittings. No swivel type aligners shall be used. Conduit entering fixtures shall be sealed with oakum and compound.

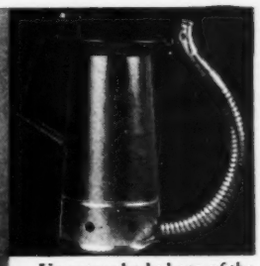
(h) Switches for control of lights shall be located out of doors or in a place where the hazardous condition does not prevail. Where possible, conduit entering switch shall be sealed with oakum and compound.

(i) Switches for control of lights, if necessary to install in a hazardous location, shall be of the vapor proof type. Conduit entering light switches shall be sealed with oakum and compound.

(j) Extension cords, where required, shall be connected to supply conductors with a vapor proof interlocking switch and receptacle and provided with vaporproof hand lamp.

1650 FEET

this Brookins Measure was dropped from an airplane in the latest "Shock Test" to prove Brookins *quality* . . .



Un-retouched photo of the standard Brookins Measure used in this latest "Shock Test." It was dropped from a WACO Plane, over Waco Field, Troy, Ohio, April 3rd, 1930.

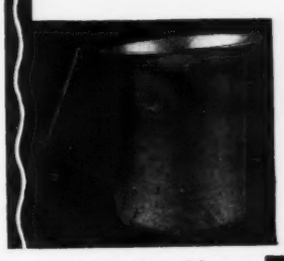
Down it came, hurtling and twisting and turning . . . glinting in the sunlight. It just missed a tree and lit with a thud among the rocks alongside a brook. When we picked it up the only damage was that dent in the skirt, under the spout, where it struck on a rock. The measure is still perfectly legal and fit for service.

What's a bump like that to a Brookins? It's all in the day's work. Just another *kind* of abuse, that's all. These measures are tough! They don't need pampering around a Service Station.

That's why it *pays* to insist on the Brookins trade-mark on your service station equipment. They are built to stand up under the "shock tests" of every-day use . . . and they do!

Ask your jobber salesman . . . or write us for descriptive literature regarding the complete Brookins line.

THE BROOKINS MFG. CO., 728 Hawthorne St., Dayton, O.



Brookins
SERVICE STATION EQUIPMENT
"Satisfying Aids to Satisfying Service"

0-21

Just for the fun of it, we dropped this Brookins "Seamless," too. If you can discover that it was hurt in any way, you can have it. We couldn't. (No. We did *not* drop a Brookins oil bottle!)

The use of extension cords is not recommended.

(k) When the motor can be started direct on the line, the motor starting switch shall be of the remote control type located at a point where the hazardous condition does not prevail, operated by a vapor proof push button station located at the most convenient place, within sight of motor. Conduit entering switch boxes and push button stations shall be sealed with oakum and compound.

(l) If a location free from vapor hazard cannot be found within a reasonable distance of the motor, an oil-immersed switch may be used, provided said switch contains no fuses, thermal cut-outs, relays, or other auxiliary devices which in operating might create an arc or spark not immersed in oil or enclosed in a vapor tight housing.

(m) Where practical, means should be provided for cutting off all power supply to pump motors, from some point at a safe distance from pumphouse, loading shed and tank yard, for emergency use.

These same men compiled a set of instructions for reduction of electrical hazards of existing installations at bulk stations.

General

The object of these instructions is the elimination of all needless electrical hazards at bulk stations. These instructions are intended to apply only to "hazardous locations," which may be defined as locations where a dangerous concentration of inflammable vapors may exist either in normal operations, or by accident (such as overflowing of a tank, breaking of a pipe or hose, or the leaking of a gasket or stuffing-box). This will cover such typical locations as pumphouses.

To this end, it is essential that any device liable to create an arc or spark under any conditions of operation must be enclosed in a vapor-proof housing, or immersed in oil, or removed to a non-hazardous location.

That it is difficult to secure complete protection is indicated by the fact that the Underwriters' Laboratories have not approved any switching devices of any make or type for use in hazardous atmospheres. For this reason it is recommended that switches be installed in non-hazardous conditions wherever possible.

Conduit and Wiring

Conduit and wiring shall be put in first class condition. All conduit and fittings shall be painted if rusty, and if badly corroded or defective shall be replaced. Conduit systems shall be mechanically secure and shall form a complete metallic enclosure for all wiring. Conduit shall be securely fastened in place, replacing any defective fastenings. All wiring must be run in metal conduit, either rigid or flexible. All wiring not meeting this requirement shall be removed.

Lighting

All lighting fixtures shall be vapor proof, otherwise they shall be removed. All switches for lights shall be of a vapor-proof type.

Motor Control

Knife switches, either open or enclosed (including so-called "Safety Switches") or any other type not oil immersed, will not be permitted in hazardous locations. Push buttons or other circuit-opening tripping devices attached to oil switches shall be disconnected and removed, and shall be replaced by an approved vapor-proof push button.

Emergency Control

It is desirable to have some means of stopping all motors in the pump house, in case of fire or other emergency, that is readily accessible and in sight of pumphouse. This may be accomplished by a hand-operated switch in the power feeder, or by a push button connected in the motor-control wiring.

Such switch should be provided with a sign explaining its purpose.

7. Just as the pumphouse floor should always be dry and clean as a room in one's home so should its purpose be confined to the housing of pumps only. It is not a storage house. It is not a tool room. Nor is it a workshop. Least of all is it a junk house. Let no rubbish or oily rags accumulate in your pumphouse. A pumphouse is for pumps only.

Warehouse and Garage

Your warehouse and garage also merit attention when fire prevention is being considered. Since no inflammable products are stored in either place, however, we do not go to the same length in fortifying ourselves as we do elsewhere about the premises.

Yet frequent inspections should be made of lighting equipment. Wiring should be encased in conduits. Switches should be at least the push-button type.

Care should be exercised to prevent slopping of oils on the floors if they are wooden. The modern warehouse and garage is constructed fireproof and of course has cement floors. Rubbish should not be allowed to accumulate. Stock should not be carelessly piled. Plenty of passage way and wide aisles should be allowed for quick exit.

As to the garage the same can be said concerning lighting equipment, wiring and switches as has been said concerning these features in the warehouse. If repair work is done in the garage and extension cords used, such extension cords should be rubber insulated and kept in good condition. Incidentally, I am reminded of the occurrence of a bad fire in a garage resulting from the following circumstances:

A driver was backing his truck into the garage. He backed against the wall. His faucets were exposed, i.e., they were not protected by a bumper or arm. One of the faucets was broken off allowing gasoline to rush from the compartment onto the floor. Somewhere the necessary spark was created and the vapor-filled garage was soon a mass of flames.

This incident suggests the necessity for two precautions, namely (1) Inflammable material should not be carried into the garage. (2) Faucets should be protected by a substantial bumper.

Storage Tanks

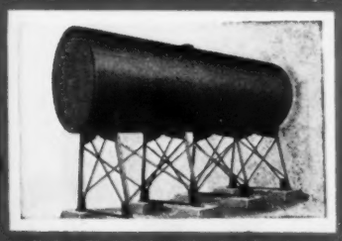
When we think of fire with reference to storage tanks, two features suggest themselves to our minds. There is, first of all, the safety device known as the safety check valve. The purpose of this device is to shut off the flow directly at the tank when all other valves may be open. These valves can be opened and closed by pulling or releasing the rope which leads to the rod inside the tank. The purpose of the safety check valve is sometimes thwarted by the substitution of wire for rope on the outside of the tank.

Should a valve be open at a time when a fire might occur reaching the safety check valve wire, obviously the valve stays open until the wire would melt. Rope would snap immediately and the valve close. These valves should not be allowed to remain open constantly; they should be opened and closed as often as a product is pumped from the tank. Allowing a weight to hold open the valve constantly, also defeats its purpose since the pulley wheels or lever on which the rope operates needs exercise to keep it in working order.

The next storage tank safety feature is grounding. Storage tanks are grounded for lightning protection. The main requisite in lightning protection is that a low resistance path be provided from the object to be protected to the earth. This path in addition to being of low resistance should be kept as free as possible from sharp bends and curves. To obtain a good electric contact with the earth, an electrical ground known as the copper weld ground is used. These grounds should be as centrally located as possible among a number of tanks. The tanks should be connected to a copper weld ground rod by means of a No. 0 Bare Annealed Copper Wire, this wire being soldered to a copper ground clamp which is in turn sweated to the short nipple at the outlet of the storage tank.

Where electric motors are used for driving pumps or where belt driven pumps are used, a lead from the grounding system in the tank yard should be carried into the pumphouse

three guides for buying Tanks



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What's the Score?

Now is the time for a cold reckoning. What's the score? In the two columns in the chart at the right set down the value you would give the Skelly line, and your present one, on each point. Use 10 for the highest rating for each point, and 9, 8, 7, and so on, for lower ratings. How close to 100 will each column add up? That's the cold reckoning—that's the comparison. And Skelly gladly welcomes comparison.

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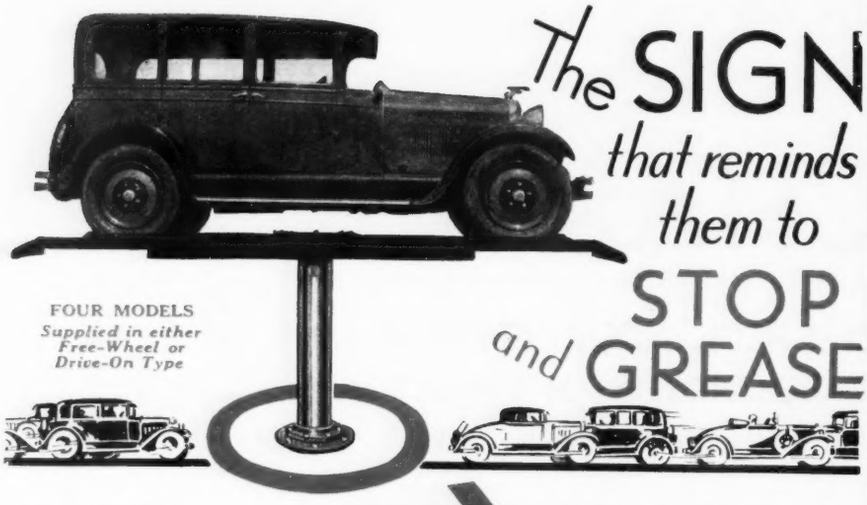
A CHART

TO ENABLE YOU TO CHECK YOUR PRESENT LINE OF OILS AND GASOLINES WITH SKELLY'S

	THE SKELLY LINE	YOUR PRESENT LINE
1 Is the company behind the products sound, progressive and alert?	☐	☐
2 Has it sufficient crude production, crude reserves and refining and transportation facilities to supply me efficiently for many years?	☐	☐
3 Is it fair in its dealings, with one price to all?	☐	☐
4 Is the motor oil notable for extra value or long life qualities?	☐	☐
5 Is its regular gasoline actually better than "regular" gasoline?	☐	☐
6 Does it have a superior anti-knock gasoline, high-test and easy on the motor?	☐	☐
7 Does it make products of such outstanding quality that they will build repeat business?	☐	☐
8 Has it through many years of aggressive advertising created consumer acceptance not otherwise attainable?	☐	☐
9 Does it offer a proved merchandising plan to help me build increased sales?	☐	☐
10 Can I increase my sales with this line, at little or no increase in overhead, to bring me more net profits at the end of the year?	☐	☐
TOTALS		



The SIGN that reminds them to STOP and GREASE

FOUR MODELS
Supplied in either Free-Wheel or Drive-On Type

OTTAWA

Approximately 12 million cars of tourists will take to the road this summer. And **OTTAWA LIFTS** are a welcome sign to this 12 million —the sign that reminds them to stop and grease where complete service is obtainable at one place. **OTTAWA LIFTS** will help you get your share of this 3½ billion dollar tourist business.

All of **OTTAWA'S** four models are rotating for maximum convenience—operated from your air compressor for easy, economical operation. No extra equipment necessary. Nothing to wear out or go wrong.

The heavy duty **OTTAWA** is full hydraulic and oil supported and may be locked in any position, so that the same air that is used to raise the lift may be used on other operations to finish the job.

One of **OTTAWA'S** four models, is the new low-priced Lift—super-service for every station—at this low price

ONLY $250

F. O. B. OTTAWA

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HIGH GRADE PETROLEUM PRODUCTS

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CYLINDER STOCKS, (Filtered and Unfiltered).
MOTOR OILS—to match any specification.
High Grade Burning Oils.
300° Mineral Seal and Railroad Oils.
High Grade Transformer Oils.

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PITTSBURGH, PA.

and connected to the base of the pumps or motor.

Boiler Room

We will not touch on the problems of the heating plant except in a general way. Suffice it to say that the chimney should never be allowed to spark; that no rubbish be allowed to accumulate. General good housekeeping rules apply to the maintenance of the boiler room.

There is one feature, however, which should be treated more specifically. How close is the furnace door to loading or unloading operations? It can be in such a location that should both the furnace door and the boiler room door be open, vapors can be wafted into the furnace flames. Your boiler should be as far from loading and unloading operations as possible.

Loading Trucks

The overflow of the truck compartment is the result of pure carelessness. Coupled with the absence of truck grounding devices, during the process this presents a serious hazard.

A truck should never be permitted to load unless it is grounded. Briefly the arrangement consists of a stationary wooden handle from which projects a solderless copper connector. This is suspended above the position which the truck takes when it is being loaded. Depending upon the size of the truck, it has one or more static contact balls mounted on the top of the tank. Before the flow of gasoline begins, the handle is drawn to the contact ball where it is clamped until the compartment is filled.

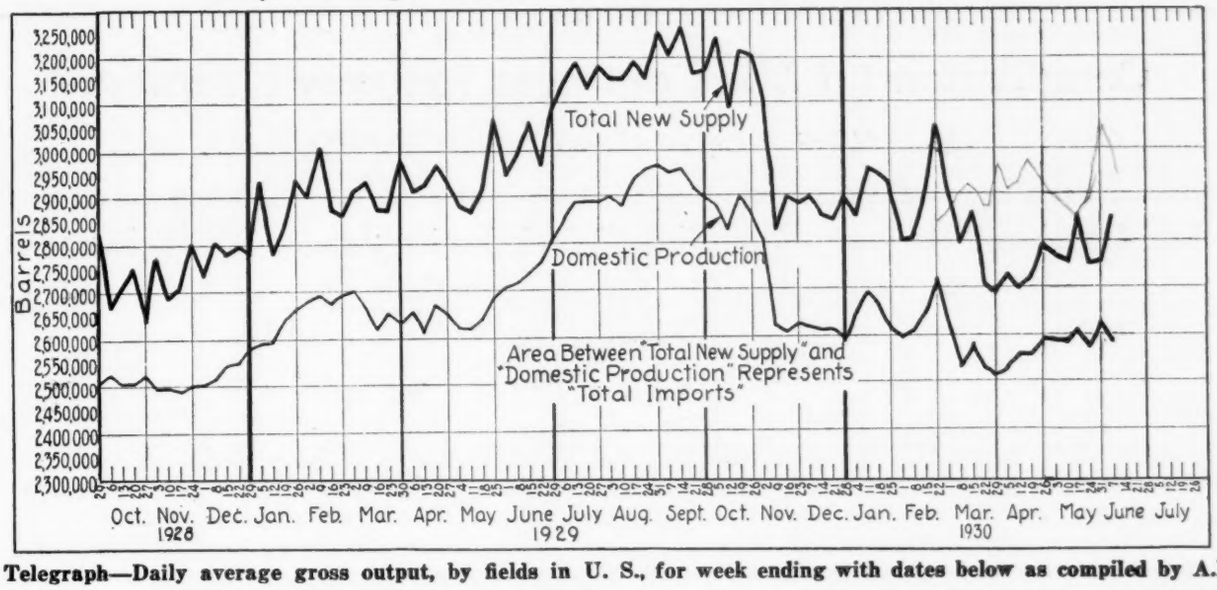
Fire Fighting Equipment

Buckets with clean white sand should be hung up in convenient places in warehouses. A sufficient number of good quality and efficiency operating liquid fire extinguishers should be conspicuously and strategically installed in every bulk station building and at the loading rack. During the summer months, a good foam extinguisher should be substituted for the liquid (perhaps more desirable is carbon tetra-chloride) extinguisher at the loading rack.

Foam extinguishers, or carbon dioxide, should be supplied also at other strategic points about the buildings and premises. All equipment of this kind should be periodically examined to ascertain whether or not it is in good working condition. We inspect once a month. A linen dated tag attached to each extinguisher bears evidence of our monthly inspection and serves to make inspection once a month a habit.

Gasoline imports by this country in February totaled 952,900 barrels, valued at $3,458,000. The Netherland West Indies shipped 864,250 barrels of this amount to the United States.

Daily Average Crude Oil Production and Imports



By Telegraph—Daily average gross output, by fields in U. S., for week ending with dates below as compiled by A.P.I.

PRODUCTION SUMMARY	June 7	May 31
Production east of Rockies	1,988,650	2,004,350
Decrease		15,700
Total production in U. S.	2,588,050	2,609,450
Decrease		21,400
Crude oil imports	264,715	143,430
Increase		121,285
Total crude supply	2,852,765	2,752,880
Increase		99,885

OKLAHOMA	June 7	May 31
Allen Dome	23,200	24,450
Asher	1,800	1,850
Blackwell	3,400	3,400
Bowlegs	28,400	28,600
Braman	3,450	3,500
Bristow-Slick	15,850	15,600
Burbank	16,500	16,450
Carr City	5,550	7,200
Cromwell	7,550	7,600
Cushing	13,850	13,900
Davenport	1,200	1,200
Duncan District	8,300	8,300
Earlsboro	33,600	38,450
East Earlsboro	29,400	24,550
Fox	1,150	1,150
Garber	4,600	4,600
Graham	3,550	3,550
Healdton	11,900	11,900
Hewitt	7,100	7,100
Hubbard	1,600	1,600
Konawa	22,950	16,450
Little River	44,550	49,650
Little River, East	16,900	15,750
Logan County	6,100	5,800
Maud	4,050	3,900
Mission	7,250	9,450
North Okmulgee	10,750	10,750
Oklahoma City	117,500	126,650
Osage (Outside Burbank)	26,200	26,150
Papoose	2,800	2,800
Pearson	550	550
Sasakwa	9,100	8,900
St. Louis	24,150	27,450
Scholem-Alechem	13,300	13,350
Searight	9,700	10,650
Seminole	28,650	28,000
Seminole, East	4,600	4,700
South Okmulgee	7,250	7,250
Thomas	700	750
Tonkawa	7,250	7,250
Wewoka	3,650	3,650
Yale-Jennings	8,050	8,050
Others	69,650	68,200
Total, Oklahoma	667,600	681,050
Decrease		13,450

KANSAS		
Augusta-Fox Bush	3,000	3,000
Churchill	4,050	4,050
El Dorado	4,050	4,050
Florence-Covert	800	800
Greenwood County	20,400	20,450
Oxford	2,750	2,900
Peabody-Elbing	3,250	3,250
Rainbow Bend	1,100	1,050
Russell	3,550	3,550
Sedgwick County	19,150	19,400
Voshell	23,450	23,700
Others	39,000	38,800
Total Kansas	134,600	135,050
Decrease		450

NORTH LOUISIANA		
Caddo, light	7,900	6,900
Caddo, heavy	2,300	2,050
Cotton Valley	2,000	2,200
De Soto and Red River	3,050	3,050
Haynesville	4,650	4,600
Holly	1,550	1,700
Homer	3,600	3,600
Sarepta Carterville	3,550	3,350
Urania	5,100	5,100
Zwolle	5,450	2,900
Others	1,600	1,650
Total, North Louisiana	40,750	37,100
Increase		3,650

ARKANSAS		
Champagnolle	3,800	3,800
Eldorado	4,050	4,050
Lisbon	1,000	1,000
Nevada	900	900
Smackover, light	5,150	5,150
Smackover, heavy	40,000	36,700
Stephens	950	950
Others	550	550
Total, Arkansas	56,400	53,100
Increase		3,300

TEXAS (OUTSIDE GULF COAST)		
Panhandle District		
Carson County	8,900	9,350
Gray County	77,600	79,000
Hutchinson County	23,400	23,300
Wheeler County	800	550
Others	400	500
Total, Panhandle Texas	111,100	112,700
Decrease		1,600
North Texas		
Archer County	19,300	19,350
Burkburnett	8,400	8,400
Electra	11,300	11,300
Iowa Park and K. M. A.	5,900	5,900
Montague-Cooke	10,400	10,400
Wilbarger	24,100	25,600
Others	2,000	2,000
Total, North Texas	81,400	82,950
Decrease		1,550
West Central Texas		
Brown County	6,700	6,750
Callahan County	3,900	3,950
Coleman County	3,700	4,150
Eastland-Desdemona	5,800	5,850
Jack County	3,800	3,800
Palo Pinto County	650	600
Shackleford County	6,700	6,650
Stephens County	5,700	6,100
Throckmorton County	1,050	1,100
Young County	19,000	17,800
Others	1,450	1,900
Total, West Central Texas	58,450	58,650
Decrease		200
West Texas		
Crane and Upton Counties	40,900	42,300
Crockett County	2,250	2,100
Ector County	15,300	15,100
Howard County	33,900	34,600
Jones County	1,400	1,300
Mitchell and Scurry Counties	2,150	2,350
Reagan County	17,700	17,500
Winkler County	69,400	70,700
Yates	111,500	113,700
Balance Pecos County	3,700	4,300
Others	3,900	3,400
Total, West Texas	302,100	307,350
Decrease		5,250
East Central Texas		
Boggy Creek	3,800	3,900
Corsicana-Powell	5,750	5,800
Currie	250	250
Mexia	4,150	4,250
Nigger Creek	200	200
Richland	200	200
Van Zandt	25,600	22,700
Wortham	800	800
Total, East Central Texas	40,750	38,100
Increase		2,650
Southwest Texas		
Dale	250	250
Darst Creek	28,600	27,400
Laredo District	7,850	7,900
Luling	9,000	9,100
Lytton Springs	800	800
Salt Flat	20,700	20,950
Somerset	1,050	1,100
Others	1,450	1,500
Total, Southwest Texas	69,700	69,000
Increase		700
Total, Texas (Outside Gulf Coast)	663,500	668,750
Decrease		5,250

GULF COAST		
Coastal Texas		
Barbers Hill	24,350	22,550
Batson	1,100	1,100
Big Creek	4,350	4,700
Blue Ridge	1,800	1,800
Boling	1,100	1,150
Damon Mound	600	600
Esperson	2,250	2,400
Fannett	1,000	900
Goose Creek	4,500	4,400
Hull	9,900	9,850
Humble	15,900	16,750
North Dayton	2,800	1,600
Orange County	2,400	2,350
Pettus	3,900	3,900
Pierce Junction	9,850	9,500
Port Neches	1,500	1,600
Raccoon Bend	12,200	11,950
Refugio County	34,150	36,200
Saratoga	1,050	1,100
Somerville	1,700	1,700
Sour Lake	2,350	2,350
South Liberty	4,500	4,500
Spindletop	16,400	16,450
Sugarland	11,700	11,800
West Columbia	5,400	5,400
Others	7,250	6,800
Total, Coastal Texas	184,000	183,400
Increase		600
Coastal Louisiana		
East Hackberry	1,800	1,900
Old Hackberry	1,250	1,250
Edgerly	650	600
Evangeline	800	750
Lake Barre	700	800
Lockport	2,800	2,550
Port Barre	3,700	3,800
Sulphur Dome	3,900	3,900
Vinton	3,950	4,000
Others	3,500	2,900
Total, Coastal Louisiana	23,050	22,450
Increase		600
Total, Gulf Coast	207,050	205,850
Increase		1,200

ROCKY MOUNTAIN		
Wyoming		
Big Muddy	2,000	2,050
Elk Basin	750	750
Grass Creek	2,100	2,150
Labarge	2,300	2,300
Lance Creek	150	100
Lost Soldier	2,400	3,200
Oregon Basin	4,700	4,700
Rock River	2,050	2,100
Salt Creek	27,450	31,650
Others	5,650	5,550
Total, Wyoming	49,550	54,550
Decrease		5,000
Montana		
Cat Creek	1,200	1,200
Pondera	2,150	2,600
Sunburst	5,800	5,800
Others	50	50
Total, Montana	9,200	9,650
Decrease		450
Colorado		
Florence	500	800
Fort Collins	1,350	1,400
Moffat (Craig)	1,050	1,000
Others	1,450	1,450
Total, Colorado	4,350	4,650
Decrease		300
New Mexico		
Artesia	750	750
Balance Lea and Eddy Counties	16,400	14,950
Hogback	400	350
Rattlesnake	1,300	1,150
Table Mesa	100	100
Others	900	900
Total, New Mexico	19,850	18,200
Increase		1,650
Total, Rocky Mountain	82,950	87,050
Decrease		4,100

CALIFORNIA		
Dominguez	10,400	10,300
Elwood-Goleta	46,300	49,000
Huntington Beach	28,000	28,500
Inglewood	17,200	17,300
Kettleman Hills	14,700	15,300
Long Beach	91,000	91,700
Midway-Sunset	65,000	65,500
Santa Fe Springs	110,800	112,000
Seal Beach	21,000	20,500
Ventura Avenue	47,000	47,000
Others	148,000	148,000
Total, California	599,400	605,100
Decrease		5,700

EASTERN		
(Not including Michigan)	125,500	126,000
Decrease		500

MICHIGAN		
Mt. Pleasant	6,700	6,750
Muskegon	3,400	3,450
Saginaw	200	200
Total, Michigan	10,300	10,400
Decrease		100

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended June 6 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended June 6
Plants Reporting....	12	29	25	15	12	93
Da. Av. Cap. (bbls.)..	94,500	161,700	106,100	82,000	77,000	521,300
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs..	68,751 + 10.0	111,696 — 9.4	67,225 — 5.4	41,584 — 1.5	47 440 — 16.6	336,695 — 5.4
Da. Av. Other Oils...	7,843 — 4.5	4,287 + 22.0	1,905 — 26.4	2,422 — 2.1	4,157 + 21.8	20,614 + 2.0
GASOLINE—Gallons						
Stocks, May 30.....	31,851,000	76,861,000	27,247,000	12,523,000	16,703,000	165,185,000
Prod. 5-30 to 6-6.....	12,615,000 + 11.4	18.000,000 — 3.7	8,870,000 — 6.8	4,383,000 + 5.4	4,477,000 — 29.3	48,345,000 — 3.3
Ship. 5-30 to 6-6.....	10,937,000 — 0.7	19,290,000 + 0.04	9,869,000 + 13.4	4,528,000 + 68.0	5,480,000 + 3.5	50,104,000 + 6.7
Stocks, June 6.....	33,529,000 + 5.3	75,571,000 — 1.7	26,248,000 — 3.7	12,378,000 — 1.2	15,700,000 — 6.0	163,426,000 — 1.1
Ratio Sales to Prod...	86.7%	107.2%	111.3%	103.3%	122.4%	103.6%
KEROSENE—Gallons						
Stocks, May 30.....	9,047,000	10,064,000	3,478,000	25,000	1,529,000	24,143,000
Prod. 5-30 to 6-6.....	2,027,000 + 5.7	2,625,000 — 12.5	1,496,000 + 3.0	21,000	475,000 — 28.6	6,644,000 — 5.6
Ship. 5-30 to 6-6.....	1,601,000 — 24.4	2,312,000 — 1.3	1,545,000 — 1.1	8,000	513,000 — 9.2	5,979,000 — 9.2
Stocks, June 6.....	9,473,000 + 4.7	10,377,000 + 3.1	3,429,000 — 1.4	38,000 + 52.0	1,491,000 — 2.5	24,808,000 + 2.8
Ratio Sales to Prod...	79.0%	88.1%	103.3%	38.1%	108.0%	90.0%
STOVE DISTILLATE—Gallons						
Stocks, May 30.....	4,066,000	2,711,000	244,000	236,000	726,000	7,983,000
Prod. 5-30 to 6-6.....	363,000 + 40.2	370,000 — 42.8	107,000 + 15.0	131,000 — 25.1	24,000 — 65.7	995,000 — 20.1
Ship 5-30 to 6-6.....	146,000 + 64.0	475,000 — 35.1	166,000 + 33.9	157,000 + 20.8	8,000	952,000 — 12.1
Stocks ,June 6.....	4,283,000 + 5.3	2,606,000 — 3.9	185,000 — 24.2	210,000 — 11.0	742,000 + 2.2	8,026,000 + 0.5
Ratio Sales to Prod...	40.2%	128.4%	155.1%	119.8%	33.3%	95.7%
GAS OIL—Gallons						
Stocks, May 30.....	6,153,000	45,063,000	3,276,000	4,509,000	8,504,000	67,505,000
Prod. 5-30 to 6-6.....	1,522,000 + 22.2	2,990,000 + 29.0	694,000 — 59.7	—34,000	1,879,000 — 27.6	7,051,000 — 15.4
Ship. 5-30 to 6-6.....	1,008,000 + 55.3	1,542,000 +123.2	387,000 — 65.4	415,000 — 26.0	2,386,000 + 16.1	5,738,000 + 13.1
Stocks, June 6.....	6,667,000 + 8.4	46,511,000 + 3.2	3,583,000 + 9.4	4,060,000 — 10.0	7 997,000 — 6.0	68,818,000 + 1.9
Ratio Sales to Prod...	66.2%	51.6%	55.8%	.....	127.0%	81.4%
FUEL OIL—Gallons						
Stocks, May 30.....	24,293,000	41,760,000	71,062,000	20,300,000	23,743,000	181,158,000
Prod. 5-30 to 6-6.....	5,400,000 + 8.7	5,543,000 — 20.7	8,093,000 + 5.1	6,456,000 + 6.0	5,048,000 + 0.8	30,540,000 — 0.8
Ship. 5-30 to 6-6.....	4,270,000 — 7.9	3,253,000 — 48.2	8,034,000 + 8.5	5,510,000 + 51.0	3,719,000 — 40.4	24,786,000 —12.1
Stocks, June 6.....	25,423,000 + 4.7	44,050,000 + 5.5	71,121,000 + 0.08	21,246,000 + 4.7	25,072,000 + 5.6	186,912,000 + 3.2
Ratio Sales to Prod...	79.1%	58.7%	99.3%	85.3%	73.7%	81.2%

Gasoline Produced by Various Methods, Week Ended June 6

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run.....	7,813,000	61.9	11,850,000	65.8	6,358,000	71.7	3,995,000	91.1	1,546,000	34.5	31,562,000	65.3
Cracked.....	4,248,000	33.7	4,863,000	27.0	1,904,000	21.5	199,000	4.5	2,433,000	54.3	13,647,000	28.2
Natural.....	554,000	4.4	1,287,000	7.2	608,000	7.2	189,000	4.4	498,000	11.2	3,136,000	6.5
Total.....	12,615,000		18,000,000		8,870,000		4,383,000		4,477,000		48,345,000	

\+ or — columns are % change over previous week.

Mid-Continent Gasoline Shipments Increase

Staff Special—By Telegraph
TULSA, June 9

GASOLINE shipments from refineries in the Mid-Continent field reporting to this publication increased more than 3,000,000 gallons in the first week of June. At the same time refiners reduced their output of gasoline about 1,600,000 gallons enabling them to withdraw 1,760,000 gallons from stock. It was the first time that the group has been forced to draw on storage in six weeks.

Crude runs to stills were reduced 19,295 barrels daily average. Each group except Kansas reduced runs. In that state there was an increase of 6100 barrels daily average. Kansas also was the only state in the Mid-Continent to add to gasoline stocks. Refiners there added nearly 1,700,000 gallons to reserves.

Kerosene stocks were increased

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended June 6. Change in stocks figures from May 9.

GASOLINE

	Gallons
Production	201,113,000
Shipments	190,298,000
Net change in stocks	10,815,000
Ratio sales to production	94.6%

KEROSENE

Production	28,329,000
Shipments	25,089,000
Net change in stocks	3,240,000
Ratio sales to production	88.6%

STOVE DISTILLATE

Production	5,115,000
Shipments	4,051,000
Net change in stocks	1,064,000
Ratio sales to production	79.2%

GAS OIL

Production	23,123,000
Shipments	22,059,000
Net change in stocks	1,604,000
Ratio sales to production	95.4%

FUEL OIL

Production	133,541,000
Shipments	110,749,000
Net change in stocks	22,792,000
Ratio sales to production	83.0%

665,000 gallons in the field as a whole, the only reduction being shown by Arkansas-Louisiana refiners. Distillate stocks showed a minor increase.

Gas oil stocks increased 1,300,000 gallons and fuel oil stocks rose nearly 6,000,000 gallons.

Fred Plane Shoots 78 in Chicago Golf Match

CHICAGO, June 7.—Fred Plane, Johnson Oil Refining Co., won the Chicago Oil Men's Club annual golf tournament at the Tam O'Shanter Country Club, June 5, shooting a 78 for the 18 holes. The prize was a set of McCreagor matched wood clubs. Second prize, a leather golf bag, went to H. Moeller.

Other low scorers were: Holger Jensen and Frank Spencer, both with Spencer Petroleum Co.; Harry Dolan, Bartles-Maguire Oil Co.; Tommy Thompson, Chicago Oil Marketing Co.; and R. Null, Apex Motor Fuel Co. J. Kelly, Deep Rock Oil Corp., carried off the "booby" prize with a score of 154.

C. S. Rosenthal, Apex Motor Fuel Co., who has been president of the club since its inception five years ago, was given a leather golf bag and a set of clubs in appreciation of his services.

About 125 oil men and their guests attended the dinner, while 98 competed in the golfing.

South Carolina Marketer Extends Territory

ANDERSON, S. C., June 5.—An expansion program which will include gasoline and oil distribution facilities at points outside of Anderson, is planned by the Anderson Petroleum Co. here. Last February this company bought out the Petroleum Oil Co., of Anderson, then headed by Charles A. Gambrill.

The points to which the new company will extend its marketing facilities include Belton, Honea, Path, Pelzer, Piedmont, Iva, Townville, Calhoun Falls, and other nearby cities.

Officers of the Anderson company are: Frank R. Thompson, formerly district sales manager here for the Standard Oil Co. of New Jersey, president and treasurer; R. L. Mitchell, vice president; and A. G. McGee, secretary.

The board of directors includes, besides Mr. Mitchell, Pierce Van Vleck, president of the Greenville Petroleum Co., Inc., Greenville, S. C.; Charles A. Gambrill, T. Frank Watkins, J. D. Hammett and F. Keith Prevost, all of Anderson.

Skilled Supervision
Guarantees the Quality of Gulf Products

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER — ENGINE — CORDAGE

Gulf Refining Company

General Sales Offices
PITTSBURGH, PA.

District Sales Offices
New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

Here is the most satisfactory way to sell *gasoline...*

SINCLAIR THREE-GAS SERVICE

In these days of keen competition with so many different engines and so many different motoring conditions why not let your customers choose their fuel from three different types and let each one get the kind of gasoline that is *just right for his own car and his style of driving?* Here is Sinclair Aircraft Gasoline, the *Ace* of high test gasolines, to give quick start and lightning getaway—brilliant, flashy performance in traffic or in the open. It gets away like a rocket! Sinclair Aircraft is the Ace of high test gasolines because it is specially manufactured at Sinclair Refineries, meeting the requirements of the Federal Specifications Board for Aviation Gasoline—domestic grade—and gives sustained power. Due to its careful fractionation it is free from dissolved gases which cause gas locks, uneven distribution, galloping and engine balk . . . Sinclair H-C Gasoline delivers high compression performance and stops knocks, even on a tough hill. It's *all* gasoline—nothing added. And if a motorist prefers to pay three cents less per gallon—Sinclair Regular Gasoline has economy and mileage, with plenty of eager power. The quality gasoline at a popular price! Why not be the dealer in your community to offer motorists this progressive gasoline service?

SINCLAIR REFINING COMPANY, INC., 45 Nassau St., New York—*Atlanta, Chicago, Houston, Kansas City*

Refinery - Tank Wagon Markets

National Petroleum News

Gasoline Demand Fails to Improve In Spite of Excellent Weather

CLEVELAND, June 9

THE first week of June saw little improvement in gasoline markets throughout the country. On the contrary shading of quotations was reported on the Atlantic and Pacific coasts and in parts of the Mid-Continent. Chicago markets were unsettled also.

General expectation had been that demand for gasoline would improve to a marked extent following the week-end holiday which brought May to a close. This expectation was increased when Memorial Day weather reports showed motoring conditions to be favorable throughout the nation.

But the first week of June saw little increase in spot buying by distributors in any district. In some sections contract customers appeared to be ordering out goods a little more liberally after the first of the month but as a whole the week's business was disappointing.

This lack of buying activity still appears to be attributable to the stock held by wholesale and retail dealers which has not been sold since the active buying which preceded the opening of the motoring season.

On the Pacific coast there was an increase in inquiries for cased goods originating in India but not a single inquiry marred the quiet of the Gulf coast. In that district rumors were current that the Export association may reduce its prices.

Association purchases in the Mid-Continent were only a little over half as large as had been anticipated there. The result was lower domestic prices.

California gasoline was reported on the East coast at prices which would figure back below the Standard of California posting of 6.5 cents f.o.b. San Pedro.

Kerosene was plentiful in all markets.

Lubricating oils and waxes were slow. In Pennsylvania cylinder stock and bright stock prices dropped sharply. In the Mid-Continent refiners continued to quote prices higher than in Pennsylvania but did no business.

Wide Range in Gasoline Prices at Chicago

Staff Special

CHICAGO, June 7

GASOLINE consumption throughout the middle west was reported to have shown a considerable increase in the first week in June, as compared with the previous week, although the spot tank car demand was reported not up to expectations by most sellers.

Following the pleasant motoring weather over Memorial Day and the succeeding week-end, Chicago sellers generally had been expecting an active spot market. However, while most of them reported a better demand than in the previous week, they said that movement fell considerably short of what they had expected. On the other hand, refiners who do most of their business through contracted accounts or through their own service stations, almost without exception reported doing a fine business over the week.

As far as spot gasoline prices were concerned, the Chicago market apparently was just marking time, with at least a 1-cent difference between the quotations of the major refiners and some of the brokers.

Sales of 58-60 U. S. Motor gasoline generally were reported at 6.50 cents to 6.875 cents, with quotations of some refiners still at 7.50 cents. Carlot marketers opinions of resale buying prices differed about 0.25 cent, although all of them agreed that lower prices prevailed in North Texas than in any of the other refining districts.

Most marketers said they were unable to buy any full specification U. S. Motor gasoline below 6.375 cents in north Texas and 6.50 cents in Oklahoma and these sellers generally quoted jobbers at 6.625 or 6.75 cents. A few marketers said they could buy from two or three refiners both in North Texas and Oklahoma at 6.25 cents. Two or three others said they were offered some north Texas Motor for resale at 6.25 cents, Group 3 basis, but were able to purchase only small quantities in Oklahoma at under 6.50 cents.

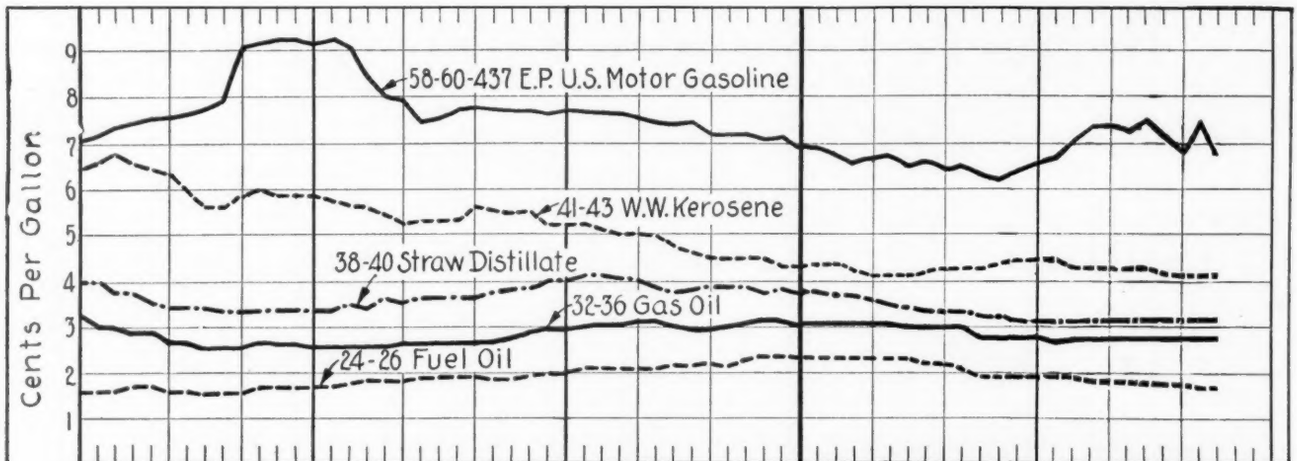
The major refiners continued to hold their quotations generally at 7.50 cents on U. S. Motor, but were making only occasional sales at this figure. They said they were getting a good play from their contract customers and were not much interested in the spot market.

Some refiners, located in North Texas and Illinois, offered U. S. Motor as low as 6.50 cents, f.o.b. Group 3. Some differential territory U. S. Motor was reported available for Indiana and Michigan delivery as low as 6.25 cents Group 3 basis.

Most sellers reported that jobbers were taking little interest in gasoline for shipment over the remainder of June, preferring to buy only as they needed material and take a chance on the market going lower.

Demand for kerosene was at a low ebb, and spot prices were lower in all quarters. Sales of 41-43 w.w. generally were reported at 3.875 to 4.125 cents on June 7. Marketers reported they could buy some 41-43 w.w. kerosene in North Texas at 3.50 cents, Group 3 basis, although they said the general resale price was around 3.75 cents.

Current Prices of Principal Mid-Continent Refined Products


58-60-437 E.P. U.S. Motor Gasoline
41-43 W.W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Cents Per Gallon
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr May June
1929
1930

Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

Buying of distillate, gas and fuel oils was confined mostly to contract goods, with little interest being shown in the spot market. However, spot prices generally were unchanged over those prevailing the past few weeks and the general opinion was that there would be little change over the remainder of the summer. Several sellers reported closing a number of contracts with distributors for their next season's requirements of furnace oils.

Generally fair weather is predicted for most of the Standard of Indiana territory for the beginning and again at the end of next week, with shower periods likely during the middle days. Temperatures probably will be moderate most of the week.

Shell Manager Resigns

CHICAGO, June 7.—W. K. Evans, manager east of the Mississippi and north of the Ohio rivers of the Shell Petroleum Corp., has resigned, to be effective early in July. For the past 12 years Mr. Evans has been marketing Shell products in the middle west.

His oil experience extends back some 22 years when he entered the employ of the Standard Oil Co. of Ohio. Immediately prior to joining the Shell corporation he was with the Sinclair Refining Co.

Other than taking an extended vacation out west, Mr. Evans has announced nothing definite for the future.

Wichita Has Oil Men's Club

WICHITA, Kans., June 5.—Oil men of Wichita have organized the Wichita Oil Men's Club. At a recent meeting about 75 oil marketers, jobbers, producers and supply company representatives elected these officers:

Lacy J. Black, manager, Cities Service Oil Co., president; W. C. Long, manager, Golden Rule Oil Co., first vice president; Ford L. Wright, owner, Ford L. Wright Stations, second vice president; D. A. Winters, owner, Winters Oil Co., secretary; and Dow Dewey, owner, Dewey Oil Co., treasurer.

In addition to the above, R. V. Swanson, Wilcox Oil & Gas Co. and E. N. Schriber, Schriber Oil & Gas Co., were elected directors for one year.

Members from surrounding towns will be admitted to membership. Any visiting oil men are welcome to attend any meetings, according to the Kansas Oil Men's Association Bulletin of May 20.

Gulf Lubes Unchanged

HOUSTON, June 9.—The Gulf Coastal lubricant market showed no change the first week of June. Normal movements of goods in summer demand were being made regularly to domestic jobbers. Inquiries for export goods were slack. Prices were unchanged.

Shipments From Southern California

LOS ANGELES, June 5.—Shipments of bulk petroleum from Southern California ports for week ended May 31 were as follows:

Destination	Crude	Gasoline	Diesel	Kerosene	Fuel	Gas-Oil	Total
Pacific For.	8,931	24,337	77,292	68,166	510,302	23,381	712,409
Atlantic Dom.	.....	330,096	.....	73,670	.....	.....	403,766
Atlantic For.	.....	148,372	10,587	.....	68,438	.....	227,397

Prices 10 Years Ago
June 7, 1920

	Oklahoma	Penna.
58-60 U. S. Motor.....	23.00–23.50c	26.50c
80-84 Natural	18.00–19.00c	.....
Kerosene (41-43 Okla.; 47 w. w. Pa.).....	10.75–11.25c	16.00c
Fuel Oil (24-26 Okla.; 38-40 Pa.)	$3.40–$3.60	14.00c
Crude (Okla. 35-35.9)..	$3.50	$6.10
Chicago tank wagon		26.00c

Prices A Year Ago
June 10, 1929

	Oklahoma	Penna.
58-60 U. S. Motor.....	9.2366c	10.25–11.00c
Grade A Natural	7.50–7.75c	.....
Kerosene (Okla. 41-43; Pa., 47 w. w.).....	6.00c	7.625–8.00c
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.675–$0.75	4.875–5.375c
Crude (Okla. 35-35.9)..	$1.40	$4.00
Chicago tank wagon		16.00c

Mid-Continent Refinery Markets

Little Increase in Gasoline Demand

Staff Special
TULSA, June 7

GASOLINE business in the Mid-Continent marketing area was disappointing to refiners the first week in June. Demand showed a slight increase over the last week of May, many sellers reported, but was far from expectation. Demand was classed as only fair in all districts.

Prices remained generally unchanged in Kansas and Oklahoma, although a wide range existed, but material reductions were made in all other sections of the Mid-Continent.

North Texas refiners made the most drastic reductions. Their prices dropped 0.25 to 0.50 cent a gallon. Louisiana and Arkansas refiners reduced quotations for 58-60 U. S. Motor to 7 cents, and the west Texas district prices moved down on a parity with the north Texas quotations.

There is little doubt but what the gasoline purchases by buyers for members of the Export Petroleum Association for June had a depressing effect on the market, a condition just the reverse of what normally would be expected. But there seems to be very little normalcy in the market nowadays.

The refiners offered the buyers approximately 20,000,000 gallons of gasoline for June delivery to export terminals at the Gulf. But when the buyers completed their placing of allotments, only 1000 cars, or approximately 8,000,000 gallons, had been bought. That was a keen disappointment to refiners—particularly to those in north Texas to whom export business is virtually life.

Refiners in other districts became somewhat apprehensive, thinking there might be more gasoline placed on the domestic market from north Texas and other districts from which export gasolines had been offered. Meanwhile, there has been a continuation of stiff competition among the districts for the domestic gasoline business in the middle west.

There was considerable activity on the part of an independent buyer of export products which may tend to help the situation slightly. This buyer was understood to have obtained a cargo of gasoline from an Arkansas refiner who had been extremely active in the Chicago market area the past few weeks. Unconfirmed reports state the refiner has a large amount of gasoline in storage and he may fill the export order from his stocks, and continue his activities in the Standard of Indiana territory. But even if he does draw on stocks for that order of 2 to 3 million gallons, it will mean that much gasoline out of the way when and if the so-called summer demand gets under way in the manner in which the refiners hope it will.

The present market is not one which encourages predictions as to the future. The opinion generally was that unless some sizable buying came into the field within the next week or 10 days Mid-Continent refiners would not enjoy much higher prices this year. That opinion may be as far from what the result will be as the poles, but there are the high gasoline stocks in the Mid-Continent. With those high stocks Mid-Continent refiners may be forced to curtail crude runs drastically.

Natural gasolines moved downward in sympathy with refined gasolines. Natural gasoline manufacturers naturally would like to obtain the prices above U. S. Motor gasoline they received at time in former days, but they know now it isn't good business. They have learned that when the prices get above U. S. Motor the refiners cut down on their use of naturals, and there is no benefit to be gained on the final analysis.

The manufacturers like to see their prices close to but not quite on a parity with U. S. Motor gasolines nowadays. But with refiners not moving out their stocks they naturally are not going to buy quantities of natural gasoline to blend and hold in storage. The result has been a comparatively slow natural gasoline market since the first of the month, with some distress gasolines appearing at times.

Kerosenes continued to be plentiful with demand comparatively light. An Independent exporter was reported to have sent out inquiries this week for 15 to 20 cars of 44 gravity kerosene and a quantity of natural gasoline. The inquiry was in the nature of a request for bids.

Prices were generally unchanged in Oklahoma and Kansas, but were slightly lower in north Texas. Quotations for export were as much as 0.50 cent under those for domestic shipment. Neither the export nor the domestic trade, however, showed much interest and stocks continued to increase.

Gas oils and fuel oils remained dull, while fuel oils had little to give them encouragement. One or two Kansas refiners reported a decided increase in fuel oil demand, but that situation apparently was local. Refiners generally indicated fuels were sluggish and that it was not a matter of price that made them that way. The demand was definitely lacking.

Neutral oils demand was slightly slower but with stocks comparatively low no reaction was noted in prices. Bright stocks were extremely sluggish and the market was unsettled. Refiners making low cold test stocks continued to quote 37 cents on inquiries from domestic jobbers, but without exception said they were getting no business. Quotations for export and for inter-refinery business ranged from 33 cents up.

Wax was extremely dull and prices were 0.25 cent lower. Stocks were reported to have increased somewhat the past few weeks. The new quotation range was from 2 cents up.

Shows How Safe Foils Burglar's Attempts

YORK, Pa., June 6.—How to foil that service station burglar is illustrated in a motion picture prepared by the York Safe & Lock Co., manufacturer of fire and burglar proof safes, vaults and locks.

That company, at the invitation of the Ohio Petroleum Marketers Association, sent P. B. Deane, special representative, and C. Wilbur Hoffman, manager, motion picture, department, on an 18-day tour of district groups of the association, exhibiting this film to oil markets.

Various types of attacks made by burglars and how their efforts are thwarted, are shown. These meetings were held at Portsmouth, Cincinnati, Dayton, Zanesville, Cadiz, Youngstown, Akron, Cleveland, Sandusky, Toledo, Lima and Columbus.

Johnson High Test Buys Quality Oil

FREEPORT, Ill., June 5.—The Johnson High Test Oil Co., with headquarters here, has purchased the entire assets of the Quality Oil Co., Dubuque, Ia.

Included are seven service stations and one bulk plant of 150,000 gallons capacity, all in Dubuque, according to H. W. Johnson.

These additional stations extend the Johnson company's distribution facilities through eastern Iowa. It formerly marketed in northern Illinois and southern Wisconsin.

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect June 9

	Price F.O.B. Group 3		*Price F.O.B. Point of Origin*		*If for Particular Destination*
Oklahoma	6.8750	(Wt. Avg.)	6.8750	(Wt. Avg.)	.....
Kansas	7.00–7.25	.....	.....	.....	S. O. Neb. & Indiana Territory, etc.
Kansas	.....	.....	7.5000	(Wt. Avg.)	Kansas only.
North Texas	6.375–6.875	.....	6.25–6.75	.....	.....
West Texas	6.625	.....	6.50–7.00	.....	.....
Louisiana-Arkansas	6.75	.....	.....	.....	Michigan, Ohio and Indiana.
Louisiana-Arkansas	.....	.....	7.00-7.125	.....	State or differential haul.
Indiana-Illinois	6.875–7.50	.....	..... *	.....	S. O. Indiana territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Chicago Resale Market

CHICAGO, June 7

SPOT gasoline demand was better last week in the Chicago market, as compared with the previous week, but most sellers said it fell considerably short of their expectations for the week after Memorial Day. Spot tank car prices generally were unchanged over the week. Marketers offered U. S. Motor generally at 6.50 to 6.75 cents, with refiners quoting from 6.50 to 7.50 cents. Sales were reported mostly at 6.50 to 6.875 cents. Kerosene demand was slack and prices were off at least 0.125 cent over the week. Demand for distillate, gas and fuel oils generally was light.

Following prices represent majority of sales made on Group 3 freight basis, although shipments may originate in other refining districts, such as north and west Texas, Arkansas, Louisiana, Indiana, Illinois, Kentucky, etc.

	Prices June 9	**Prices June 2**	**Prices May 26**
58-60 U. S. Motor, 437 e.p.	6.50 – 6.75	6.50 – 6.875	6.625– 7.00
60-62 437 e.p. gasoline	6.625– 7.00	6.625– 7.00	6.75 – 7.125
60-62 400 e.p. gasoline	6.875– 7.25	6.875– 7.25	7.125– 7.375
64-66 375 e.p. gasoline	7.50 – 7.75	7.625– 7.875	7.625– 7.875
68-70 350-360 e.p. gasoline	7.625– 7.875	7.875– 8.125	7.875– 8.25
*Domestic Aviation Gasoline	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
41-43 w.w. kerosene	3.875– 4.125	4.00 – 4.25	4.00 – 4.25
42-44 w.w. kerosene	4.375– 4.50	4.375– 4.50	4.375– 4.50
38-40 straw distillate	2.875– 3.125	3.00 – 3.125	3.00 – 3.125
32-36 ordinary dark gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
32-36 dark zero gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
32-36 straw zero gas oil	2.625– 2.75	2.625– 2.75	2.625– 2.75
28-30 zero fuel oil (per bbl.)	$0.875–$0.925	$0.875–$0.925	$0.875–$0.925
28-30 fuel oil (per bbl.)	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
24-26 fuel oil (per bbl.)	$0.725–$0.775	$0.725–$0.775	$0.725–$0.775
18-22 fuel oil, low sulfur (per bbl.)	$0.55 –$0.60	$0.55 –$0.60	$0.55 –$0.60
18-22 fuel oil, high sulfur zero (per bbl.)	$0.55 –$0.60	$0.55 –$0.60	$0.55 –$0.60

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

Weighted Average Prices

OKLAHOMA

	June 9		**June 2**		**May 26**	
	No. of cars	**Price**	**No. of cars**	**Price**	**No. of cars**	**Price**
58-60 U. S. Motor, 437 e.p.	15	6.8750	14	6.8304	2	7.1875
60-62 437 e.p. gasoline	..	7.25–7.50 (See note)	1	7.6250	No sales reported	
60-62 400 e.p. gasoline	..	7.50–7.75 (See note)	1	7.7500	1	7.7500
64-66 375 e.p. gasoline	1	8.2500 (See note)	..	8.00–8.25 (See note)	No sales reported	
58-60 437 e.p. gasoline (Full U. S. Motor specifications not guaranteed.)	..	6.625–7.00	..	6.625–7.00	..	6.625–7.125

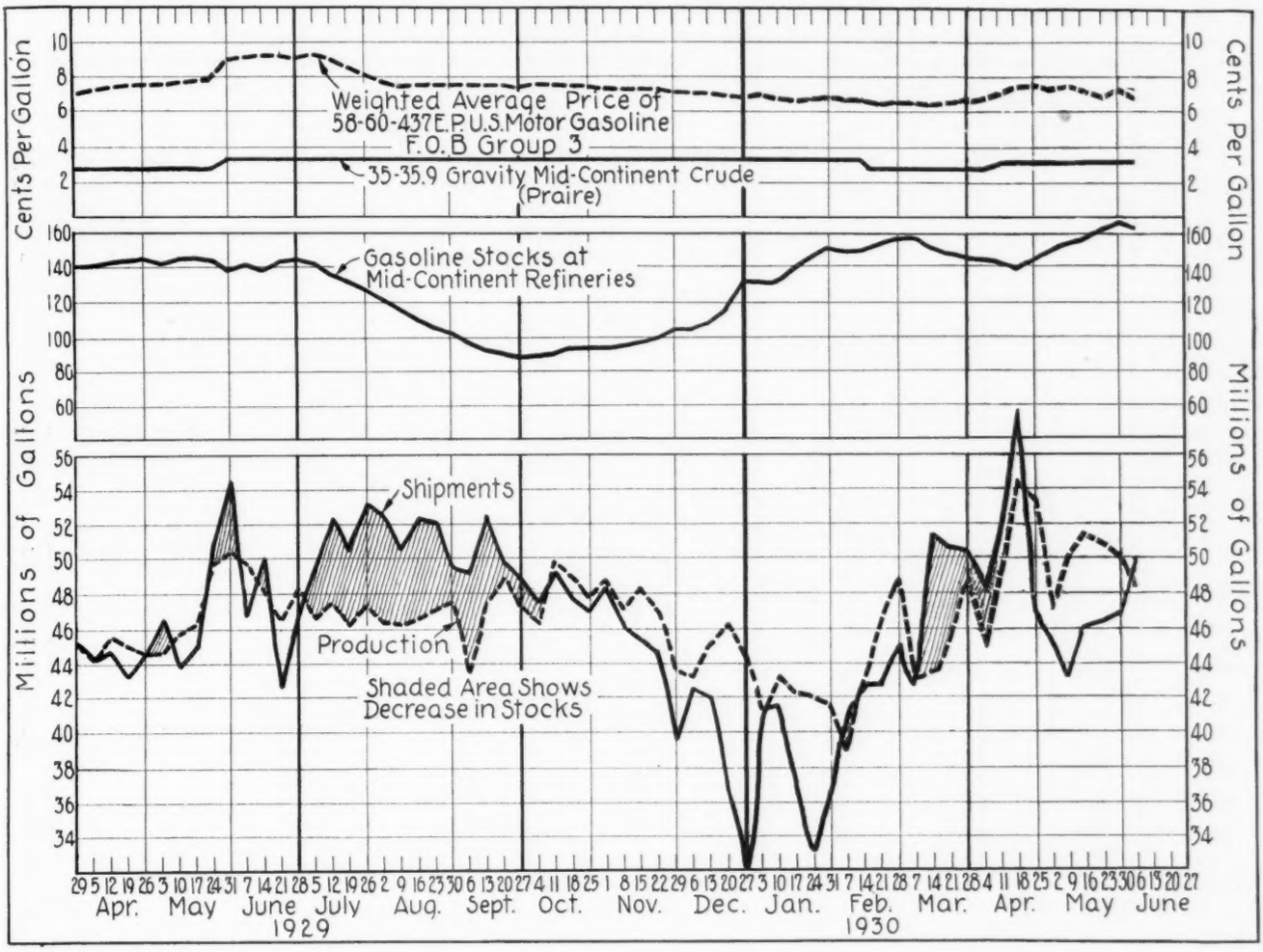
KANSAS

	June 9		**June 2**		**May 26**	
	No. of cars	**Price**	**No. of cars**	**Price**	**No. of Cars**	**Price**
58-60 U. S. Motor, 437 e.p.	7	7.5000	11	7.5114	No sales reported	

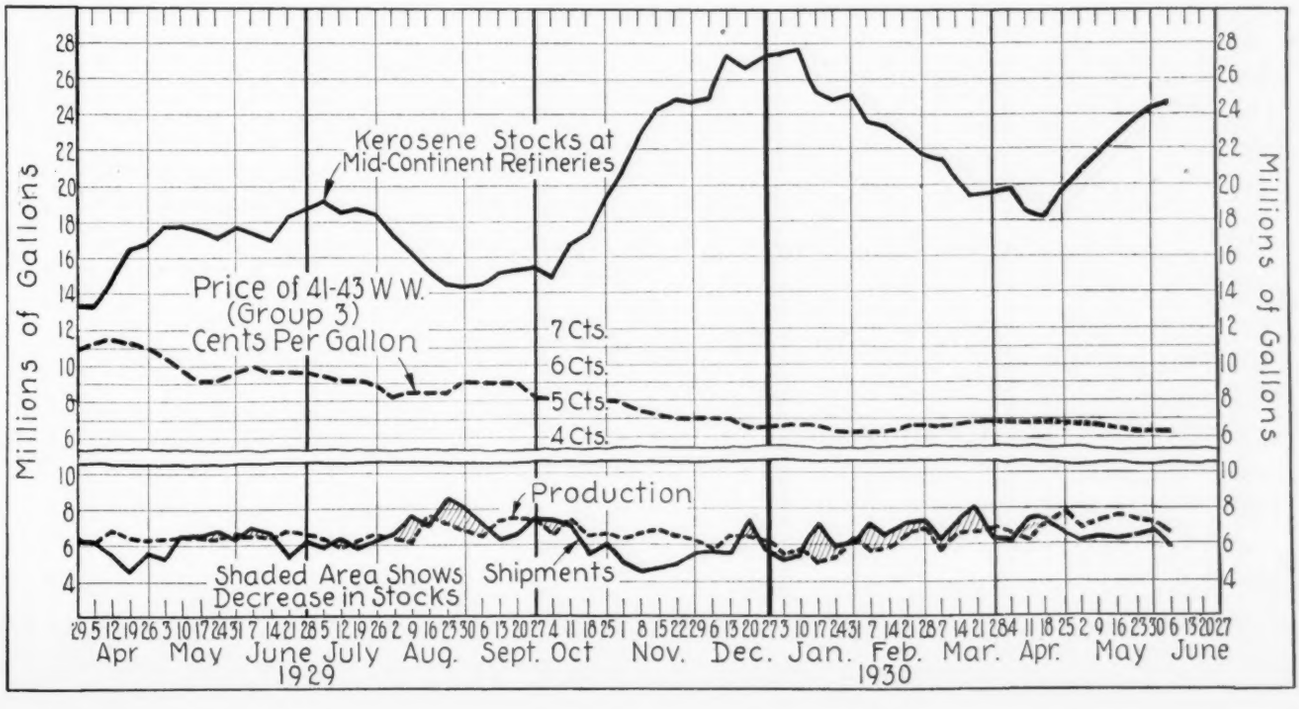
Note: No sales of this gasoline were reported on June 2 and June 9; these prices represent the majority of quotations for that date.

Barometer of Mid-Continent Refinery Market—Week Ending June 6

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 98 Plants to National Petroleum News


Cents Per Gallon
Weighted Average Price of 58-60-437E.P.U.S.Motor Gasoline F.O.B Group 3
35-35.9 Gravity Mid-Continent Crude (Praire)
Gasoline Stocks at Mid-Continent Refineries
Millions of Gallons
Shipments
Production
Shaded Area Shows Decrease in Stocks
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1929
1930

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 106



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices June 9	Prices June 2	Prices May 26
48-50 450 e.p. naphtha...	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
50-52 450 e.p. naphtha...	7.125	7.125	7.125
56-58 450 e.p. gasoline...	7.00	7.00	7.00
58-60 450 e.p. gasoline...	7.00	7.00	7.00
64-66 390 e.p. gasoline...	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00
68-70 350-360 e.p. gasoline	8.50 – 8.75	8.50 – 8.75	8.50 – 8.75
‡Domestic Aviation Gasoline.....	9.00 –10.00	9.00 –10.00	9.00 –10.00

‡Prices based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% rec. at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade.

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha.....	7.50 – 7.75	7.50 – 7.75	7.50 – 7.75
54-56 Naphtha.....	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
58-60 U.S. Motor 437 e.p.	8.125– 8.50	8.25 – 8.50	8.25 – 8.50
60-62 400-410 e.p. gasoline	8.375– 8.75	8.375– 8.75	8.50 – 9.00
64-66 390 e.p. gasoline....	8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
68-70 350-360 e.p.....	9.00 – 9.75	9.00 – 9.75	9.00 – 9.75

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline

Ohio, delivery at any point.....	11.00	11.00	11.00

KANSAS (F. o. b. refinery Kansas destination)

60-62 437 e.p. gasoline...	7.75	7.75	7.75
60-62 400 e.p. gasoline...	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
64-66 375 e.p. gasoline...	8.25	8.25	8.25

NORTH TEXAS (F. o. b. North Texas refineries)

56-58 450 e.p. gasoline...	6.25 – 6.50	6.75	6.75
58-60 450 e.p. gasoline...	6.25 – 6.50	6.75	6.75
58-60 U.S. Motor 437 e.p.	6.25 – 6.75	6.75 – 7.00	6.75 – 7.00
60-62 400 e.p. gasoline...	6.75 – 7.00	7.50	7.50
64-66 390 e.p. gasoline...	7.25 – 7.50	7.75	7.75
64-66 375 e.p. gasoline...	7.50 – 7.75	8.00	8.00
68-70 350-360 e.p. gasoline	8.00 – 8.25	8.375– 8.50	8.375– 8.50

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

50-52 naphtha.....	6.25	6.50	6.50
58-60 437 e.p. gasoline...	6.25 – 6.50	6.50 – 6.75	6.50 – 6.75
58-60 U.S. Motor 437 e.p. gasoline.....	6.50 – 7.00	7.00	7.00

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

58-60 U.S. Motor 437 e. p.	7.125	7.125	7.50

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	7.00	7.125	7.50

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	7.50 – 9.00	8.25 – 9.25	8.25 – 9.50
54-58 U.S. Motor, for outside state shipment....	7.50 – 8.75	7.00 – 8.00	7.50 – 8.75
58-61 375-400 e.p. gasoline	9.00 –10.50	9.00 –11.00	9.00 –11.00
42-45 Engine Distillate 445-480 e.p.....	7.50 – 9.00	8.00 – 9.00	8.00 – 9.00

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA (F. o. b. Oklahoma refineries)

Grade AA, 80-87.9, 90% Recovery.....	6.00	6.125	6.25 – 6.375
Grade A, 72-79.9, 90% Recovery.....	6.125	6.25	6.375
Grade BB, 84-92, 85% Recovery.....	5.50 – 5.75	†6.00	6.00
Grade B, 76-83.9, 85% Recovery.....	6.00	6.00	6.25
Grade C, 80-92, 78% Recovery.....	5.50 – 5.75	†6.00	6.00

NORTH TEXAS (F. o. b. Breckenridge)

Grade AA, 80-87.9, 90% Recovery.....	6.00	6.125	6.25 – 6.375
Grade A, 72-79.9, 90% Recovery.....	6.125	6.25	6.375
Grade BB, 84-92, 85% Recovery.....	5.375 – 5.75	†5.625– 5.75	5.875– 6.00
Grade B, 76-83.9, 85% Recovery.....	6.00	6.00	6.25
Grade C, 80-92, 78% Recovery.....	5.375 – 5.75	†5.625– 5.75	5.875– 6.00

NORTH LOUISIANA (F. o. b. Monroe District)

	Prices June 9	Prices June 2	Prices May 26
Grade AA.....	†6.25	†6.25	†6.50
Grade BB.....	†5.875	†5.875	†6.375
Grade C.....	†5.875	†5.875	†6.375

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. blend	7.50 – 8.50	7.50 – 8.50	7.50 – 8.50

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w.w. kerosene.....	5.125– 5.375	5.125– 5.375	5.25 – 5.625
46 w.w. kerosene.....	5.375– 5.75	5.50 – 5.75	5.50 – 5.875
47 w.w. kerosene.....	5.625– 6.25	5.625– 6.25	5.75 – 6.25
300 mineral seal.....	6.00 – 6.75	6.00 – 6.75	6.50 – 7.00

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosene.....	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
42-44 w.w. kerosene.....	4.50 – 4.75	4.625– 4.75	4.625– 4.75

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosene.....	4.75	4.75	4.75
42-44 w.w. kerosene.....	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25

NORTH TEXAS (F. o. b. North Texas refineries)

40-42 w.w. kerosene.....	3.75	3.75 – 4.00	3.75 – 4.00
41-43 w.w. kerosene.....	3.875– 4.00	4.00	4.00 – 4.125

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosene.....	5.00	5.00	5.00
42-44 w.w. kerosene.....	5.25	5.25	5.25

ARKANSAS (Ark., N. La. and Miss. destination)

42-44 w.w. kerosene.....	5.00 – 5.25	5.25	5.25

CALIFORNIA (F. o. b. California refineries)

38-40 w.w. kerosene.....	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Vis.		(Viscosity at 70° F.)	
200 No. 3 Assoc. Filt....	23.00 –25.00	24.00 –26.00	24.00 –26.00
180 No. 3 Assoc. Filt....	18.00 –21.00	20.50 –22.00	20.50 –22.00
150 No. 3 Assoc. Filt....	14.00 –15.00	14.50 –16.00	14.75 –16.00
		(Non Viscous)	
34 Grav. 330-340 Flash..	6.25 – 7.00	6.25 – 7.00	6.50 – 7.00

****OKLAHOMA** (F. o. b. Oklahoma refineries)

Vis.	Color	(Viscosity at 100° F.)		
100—No. 2.....		6.00 – 7.50	6.00 – 7.50	6.00 – 7.50
150—No. 3.....		8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
150—No. 4.....		7.00 – 8.50	7.00 – 8.50	7.00 – 8.50
180—No. 3.....		9.00 –10.50	9.00 –10.50	9.00 –10.50
180—No. 4.....		9.00 –10.00	9.00 –10.00	9.00 –10.00
180—No. 5.....		8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
200—No. 3.....		12.00	12.00	12.00
200—No. 4.....		10.00 –11.50	10.00 –11.50	10.00 –11.50
200—No. 5.....		10.50 –11.00	10.50 –11.00	10.50 –11.00
220—No. 3.....		12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4.....		12.00 –12.50	12.00 –12.50	12.00 –12.50
220—No. 5.....		11.00 –12.00	11.00 –12.00	11.00 –12.00
240—No. 3.....		13.50 –15.50	13.50 –15.50	13.50 –15.50
240—No. 4.....		12.50 –14.50	12.50 –14.50	12.50 –14.50
240—No. 5.....		12.00 –14.00	12.00 –14.00	12.00 –14.00
280—No. 3.....		17.00 –18.00	17.00 –18.00	17.00 –18.00
280—No. 4.....		15.00 –17.00	15.00 –17.00	15.00 –17.00
280—No. 5.....		14.00 –15.50	14.00 –15.50	14.00 –15.50

†Prices nominal **††Only one refiner quoting** ***Quotations only** ****Represents Both Sales and Quotations.**

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL (F. o. b. Gulf Coastal refineries)

Vis.	Color	Prices June 9	Prices June 2	Prices May 26
		(Viscosity at 100° F., pour test 0)		
100	No. 2 Pale	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
200	No. 3 Pale	9.50 – 9.75	9.50 – 9.75	9.50 – 9.75
300	No. 3 Pale	10.75 –11.00	10.75 –11.00	10.75 –11.00
500	No. 3½ Pale	12.00 –12.25	12.00 –12.25	12.00 –12.25
750	No. 4 Pale	13.50 –13.75	13.50 –13.75	13.50 –13.75
1200	No. 5 Pale	16.00 –16.50	16.00 –16.50	16.00 –16.50
2000	No. 4 Pale	17.00 –17.50	17.00 –17.50	.....
200	No. 5½ Red Oil	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
300	No. 5½ Red Oil	10.00 –10.25	10.00 –10.25	10.00 –10.25
500	No. 6 Red Oil	11.25 –11.50	11.25 –11.50	11.25 –11.50
750	No. 6 Red Oil	12.75 –13.00	12.75 –13.00	12.75 –13.00
1200	No. 5-6 Red Oil	15.00 –15.25	15.00 –15.25	15.00 –15.25
2000	No. 6 Plus Red Oil	17.00 –17.50	17.00 –17.50	.....

‡CALIFORNIA (F. o. b. California refineries)

Vis.	Color	(Viscosity at 100° F.)		
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50	11.50	11.50
300	No. 3	13.00	13.00	13.00
450	No. 3	15.50	15.50	15.50
550	No. 3	16.50	16.50	16.50
600	No. 3	17.00	17.00	17.00
200	No. 5	11.00	11.00	11.00
300	No. 5	12.00	12.00	12.00
400	No. 5	14.00	14.00	14.00
500	No. 5	15.00	15.00	15.00
600	No. 5	16.00	16.00	16.00
700	No. 7	18.00	18.00	18.00

‡Neutral oils not manufactured commercially in California.

CYLINDER STOCKS

OKLAHOMA (F. o. b. Oklahoma refineries)

(Bright stock prices represent quotations to domestic jobbers only.)

190-200 Vis. D at 210° Brt. St.	41.00 –42.00	41.00 –42.00	41.00 –42.00
150-160 Vis. D at 210° Brt. St., 15-20 cold test	37.00	37.00	37.00
150-160 Vis. D Brt. Stock, 25-45 cold test	35.00 –36.00	35.00 –36.00	35.00 –36.00
150-160 Vis. E 210° Brt. St.	34.00 –35.00	34.00 –35.00	34.00 –35.00
600 St. Ref. Olive Green	9.00 –10.00	9.00 –10.00	9.00 –10.00
600 St. Ref. Dark Green	9.00	9.00	9.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	14.50 –16.00	17.00 –19.00	19.00 –20.00
650 Steam Refined	23.00 –25.00	26.50 –28.00	28.00 –29.00
600 Flash	27.00 –28.00	28.00 –30.00	29.00 –31.00
630 Flash	31.00 –33.00	33.00 –35.00	34.50 –35.00
600 Warren E	27.50 –28.00	28.00 –29.50	28.50 –29.50
600 Oil City E	26.50 –27.00	27.00 –28.50	27.50 –28.50
600 D Filtered	32.00 –33.00	34.00 –35.00	34.00 –35.00
Cold Test Stock, 40-50 p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	32.00 –34.00	35.00 –37.00	36.00 –38.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	30.50 –32.00	†34.00 –35.00	†35.00 –36.00

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale, a.m.p.	2.35 – 2.50	2.375– 2.50	2.40 – 2.50
124-126 white crude scale, a.m.p.	2.35 – 2.50	2.375– 2.50	2.40 – 2.50

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries)

124-126 White Crude Scale, a.m.p.	2.00 – 2.125	2.375	2.375

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	3.75 – 4.25	3.875– 4.25	4.00 – 4.25
30-34 fuel oil	3.625– 3.75	3.625– 3.75	3.625– 3.75
28-32 fuel oil	3.625– 3.75	3.625– 3.75	3.625– 3.75

†Prices nominal ††Only one refiner quoting *Quotations only

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices June 9	Prices June 2	Prices May 26
38-40 straw distillate	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
36-38 straw distillate	2.875	2.875	2.875
32-36 straw gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
32-36 straw gas oil zero	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
32-36 dark gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
32-36 dark gas oil zero	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
28-30 zero fuel oil (per bbl.)	$0.90 – 0.95	$0.90 – 0.95	$0.90 – 0.95
28-30 fuel oil (per bbl.)	$0.85 – 0.90	$0.85 – 0.90	$0.85 – 0.90
26-28 fuel oil (per bbl.)	$0.75 – 0.80	$0.75 – 0.80	$0.80 – 0.85
24-26 fuel oil (per bbl.)	$0.70 – 0.75	$0.70 – 0.75	$0.70 – 0.80
22-26 fuel oil (per bbl.)	$0.625– 0.675	$0.625– 0.675	$0.625– 0.675
18-22 fuel oil (per bbl.)	$0.525– 0.60	$0.55 – 0.60	$0.575– 0.60
16-20 fuel oil (per bbl.)	$0.50 – 0.575	$0.525– 0.575	$0.55 – 0.60
14-16 fuel oil (per bbl.)	$0.475– 0.575	$0.50 – 0.575	$0.50 – 0.575

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	3.50	3.50	3.50
36-38 straw distillate	3.00	3.00	3.00
32-36 straw gas oil	3.00	3.00	3.00
18-22 fuel oil (per bbl.)	$0.70 – 0.75	$0.70 – 0.75	$0.75 – 0.80
10-14 fuel oil (per bbl.)	$0.60 – 0.65	$0.60 – 0.65	$0.70

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	3.00	3.00	3.00
38-40 p.w. treated distillate	3.25	3.25	3.25
32-36 gas oil, cracked	2.375– 2.50	2.375– 2.50	2.375– 2.50
32-36 St. reduced gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
24-26 fuel oil (per bbl.)	$0.60	$0.60	$0.60
20-24 fuel oil (per bbl.)	$0.50	$0.50	$0.50
18-22 fuel oil (per bbl.)	$0.45	$0.45	$0.45

****WEST TEXAS** (F. o. b. West Texas refinery, or unrestricted shipment)

34-38 gas oil	2.50	2.50	2.50
30-32 gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
28-30 zero gas oil	2.50	2.50	2.50
18-22 fuel oil (per bbl.)	$0.60 – 0.65	$0.60 – 0.65	$0.60 – 0.65

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	2.75	2.75	2.75
30-32 gas oil, straw	2.75	2.75	2.75
14-16 fuel oil (per bbl.)	$0.75 – 0.85	$0.75 – 0.85	$0.75 – 0.85

ARKANSAS (Ark., N. La. and Miss. destination)

30-32 gas oil, straw	2.75	2.75	2.75
32-36 dark gas oil	2.75	2.75	2.75
28-30 gas oil	2.50	2.50	2.50
20-24 fuel oil (per bbl.)	$0.95	$0.95	$0.95
9-12 fuel oil (per bbl.)	$0.75	$0.75	$0.75
Black oil	3.25	3.25	3.25

CALIFORNIA (F. o. b. San Joaquin Valley. Nominal pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

14-18 fuel oil (per bbl.)	$0.50 –$0.65	$0.50 –$0.65	$0.50 –$0.65
14-18 Bunker oil (per bbl.)	$0.70 –$0.80	$0.70 –$0.80	$0.70 –$0.80
30-34 gas oil (per bbl.)	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
27 Plus Diesel oil (per bbl.)	$0.80 –$0.95	$0.80 –$0.95	$0.80 –$0.95

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. refinery. In tank cars ½c to ¾c per pound less.) Two refiners quoting.

Snow White	8.25 – 8.50	8.25 – 8.50	8.25 – 8.50
Lily White	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
Cream White	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
Light Amber	3.375– 3.625	3.375– 3.625	3.375– 3.625
Amber	3.125– 3.375	3.125– 3.375	3.125– 3.375
Red	2.875– 3.00	2.875– 3.00	2.875– 3.00

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

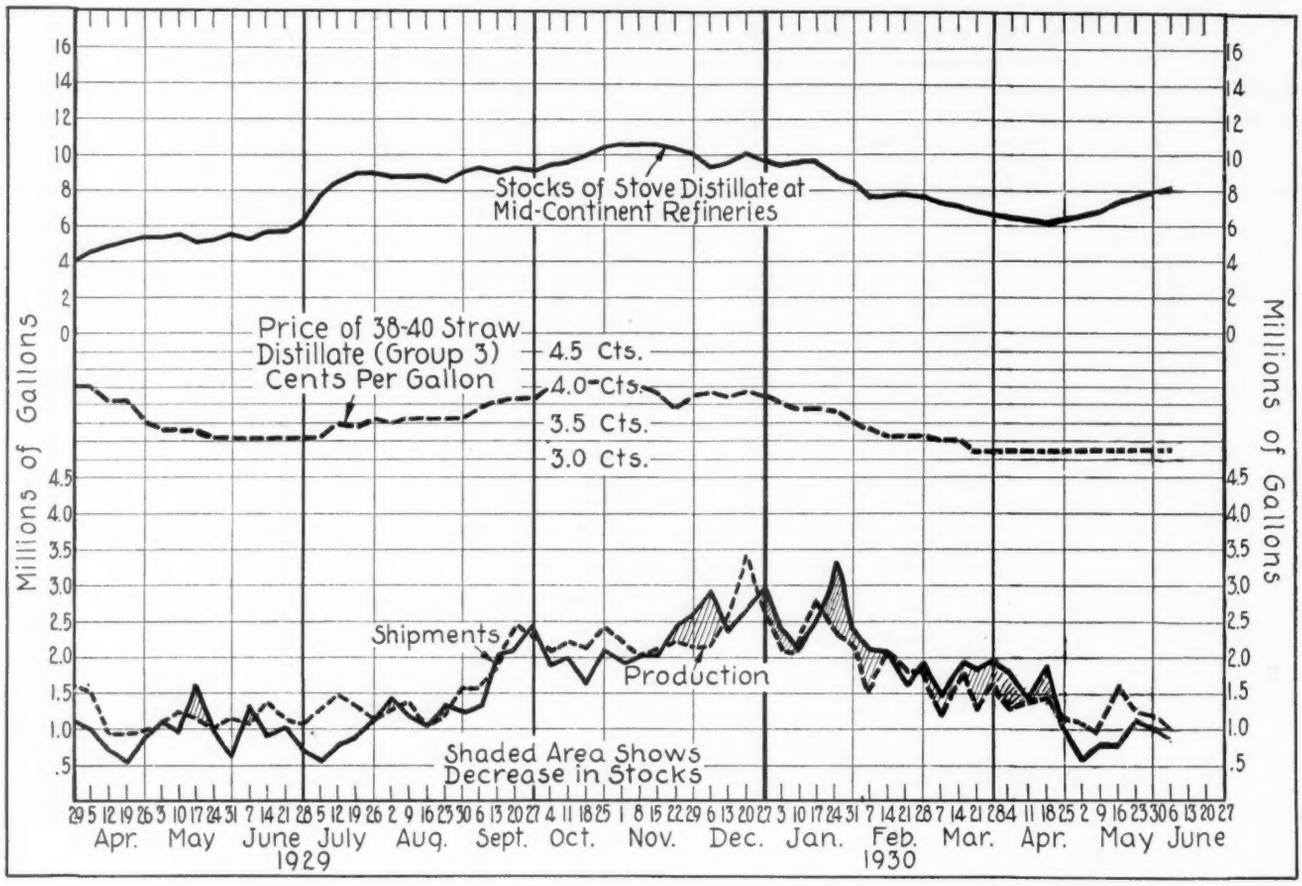
(Per ton in car lots)

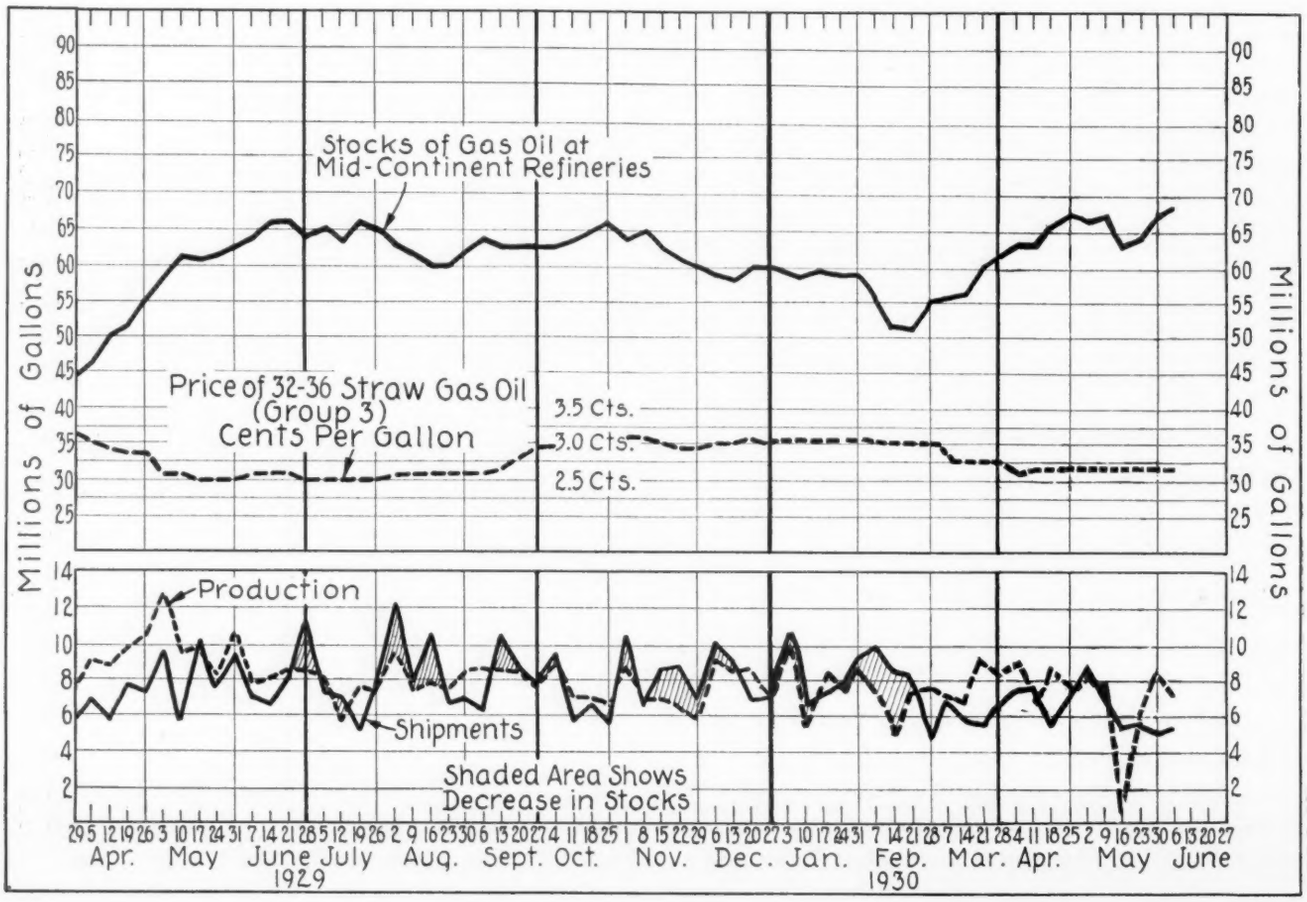
Lump	$4.50 –$5.00	$4.50 – 5.00	$4.50 – 5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

****Represents Both Sales and Quotations.**

Barometer of Mid-Continent Refinery Market—Week Ending June 6

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News

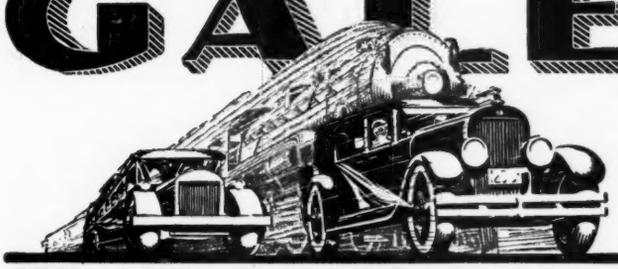

Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallon
4.5 Cts.
4.0 Cts.
3.5 Cts.
3.0 Cts.
Shipments
Production
Shaded Area Shows Decrease in Stocks
Millions of Gallons
Millions of Gallons
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1929
1930


Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Straw Gas Oil (Group 3) Cents Per Gallon
3.5 Cts.
3.0 Cts.
2.5 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
Millions of Gallons
Millions of Gallons
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June
1929
1930

If Galena

had stopped with the development of its PROCESSED MOTOR OIL, it would have been a wonderful job well done..... But in addition, a most comprehensive, vital and practical advertising and merchandising program has been definitely worked out in detail and *is in operation*.... With it, Galena offers an unbeatable combination ..... *A truly SUPER Motor Oil—100 per cent Pure Pennsylvania Oil PLUS!... Effective, proved selling plans.... Sixty-one years of unmatched success.... Larger profits than any other motor oil offers.* .....

GALENA



PROCESSED OILS

ASK ANY RAILROAD MAN - *HE* KNOWS *GALENA*

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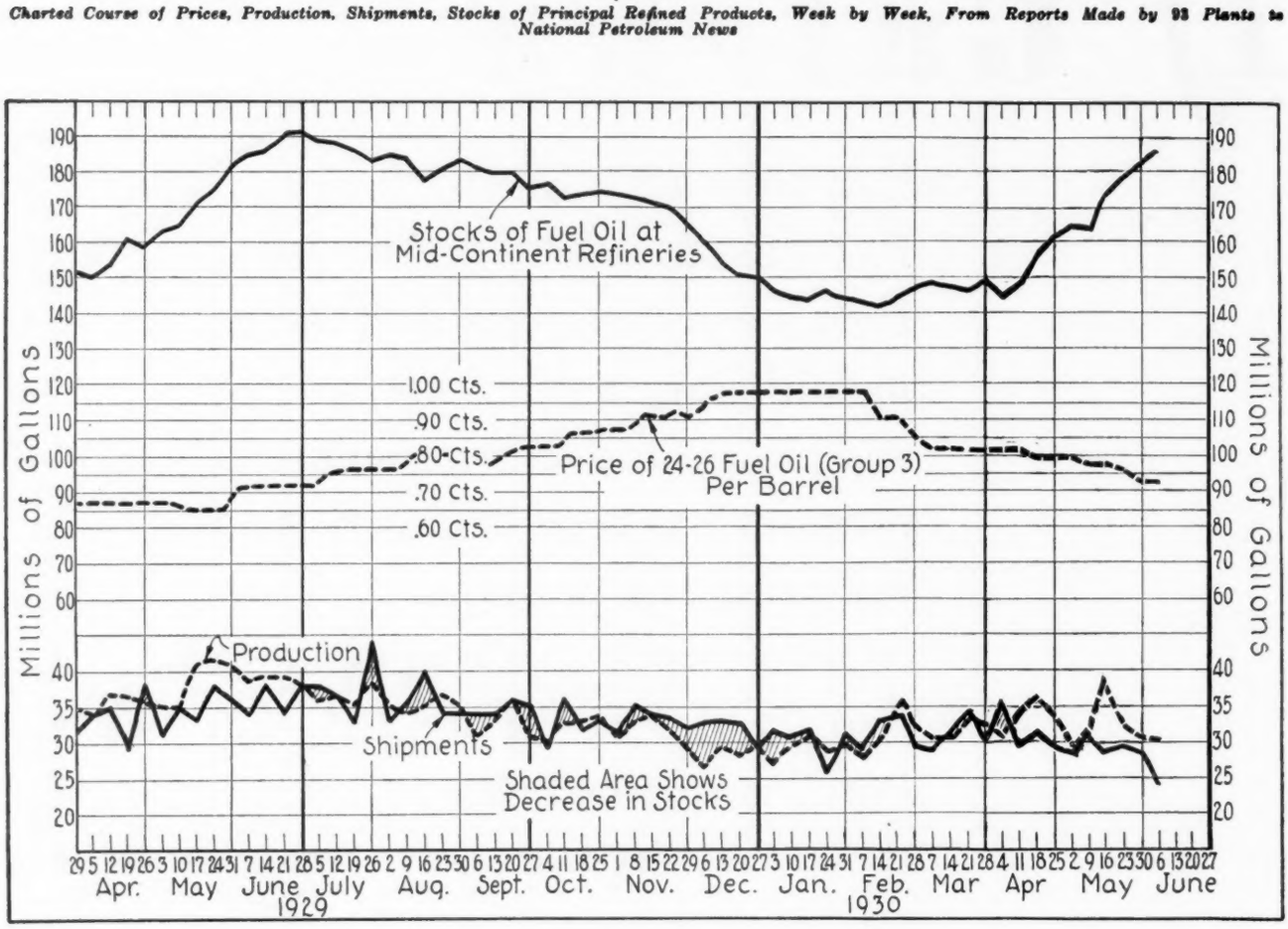
Barometer of Mid-Continent Refinery Market—Week Ending June 6

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



California Refinery Market

Oriental Inquiries for Cased Goods Increase

LOS ANGELES, June 5

PACIFIC Coast markets lacked outstanding features the past weeks. Slightly lower quotations were noted on gasoline for domestic consumption and members of the export trade evidenced considerable interest in inquiries for cased goods from India.

Local marketing officials interpret these inquiries as a movement of Oriental consumers to boycott British goods. A major California company is reported to have shipped two full cargoes of cased goods—approximately 350,000 barrels of kerosene—to Calcutta and Bombay during the past fortnight. Other west coast refiners, were said, to be negotiating for additional business in this locality.

With the last coastwise clean tanker reported fixed at $1.12, west coast exporters were far from optimistic concerning immediate future business with Atlantic seaboard buyers. Several small independent refiners with ocean terminals received inquiries on quantities of gas oil and U. S. Motor from the east coast. However, due to the apparent lack of sincerity of these queries the local trade showed little interest.

California marketing officials continued anxious over retail conditions. Large quantities of low-priced gasoline has had a weakening influence on domestic markets, with quotations as much as 0.75 cent under previous figures.

The future trend of Southern California retail markets was still a question of doubt to the trade. A majority of them believed prices would take a turn for the better before July 1 and possibly sooner. Two large Independent refiners were delivering U. S. Motor in tank truck and trailer lots at 10.50 cents, state tax included. One or two others, who had raised their prices earlier in the week, to 11.50 cents expected to meet this competition over the week end.

Motor fuel could be bought at service stations in and around Los Angeles for as low as 13.50 cents per gallon, ranging up to 19.50 cents, the price maintained at chain stations handling major products.

A move was reported on foot by major interests to buy out a large Independent refiner who has consistently sold gasoline 2 to 3 cents under the prevailing price. If the deal goes through, it is said, the local retail and tank car market will take a firmer tone. Some experts predict this move or the restoration of crude prices at Santa Fe Springs will boost immediately in-state tank car quotations to 10 cents, tax additional.

Several members of the trade reported spot sales of U. S. Motor for use within California at 7.50 cents and one or two tank cars moved for

as low as 7.25 cents. Out of state gasoline business was relatively quiet at from 7.50 to 8.75 cents.

Other commodities were practically unchanged in price and demand. The expected raise in fuel oil quotations failed to materialize with a number of small refiners reporting this goods available at 35 to 45 cents per barrel at inland depots. These figures compare unfavorably with previous quotations of 45 and 50 cents from the same points.

Pennsylvania Market

Lube Prices Drop Sharply

CLEVELAND, June 7.—Very little new buying developed in the western Pennsylvania market the first week of June. Motor fuel and burning oil prices held up fairly well while quotations for cylinder stocks and bright stocks declined sharply.

The market generally was pretty much of a gloomy affair throughout the week although in isolated instances sellers said they were enjoying a sufficient volume of business to keep their current production moving.

Favorable motoring weather over the Memorial Day week-end and through most of the ensuing week kept gasoline moving at a fairly good rate. Spot buying showed little improvement but most refiners reported instructions against contracts and deferred-shipment purchases were coming in satisfactorily.

There were fewer distress offerings of gasoline than there were of other commodities but at the same time U. S. Motor slipped 0.125 cent to 8.125 cents on the low end of the market.

Spot kerosene, 45 w.w., was plentiful at 5.125 cents a gallon. Orders for shipment over a period were reported placed at under this figure.

Fuel oils were quiet with only slight price changes noted.

Stocks of cylinder oils and bright stock were said to be a bit top heavy in some districts of the field. Some rather deep cuts in prices were made. Filterable 600 steam refined was offered June 7 at 14.60 to 16 cents a gallon, having begun the week at 17 to 19 cents. Other grades of cylinder oil were lower in price although not proportionately with 600. Filtered stocks, because of their relative scarcity, held fairly steady.

Bright stock prices hit new lows for the year. Standing at 32 cents on June 7, No. 8 color oil was better than 25 cents a gallon under the high point reached in the early part of June, 1929.

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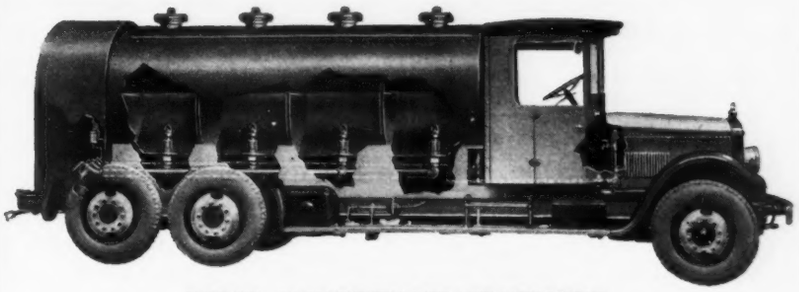

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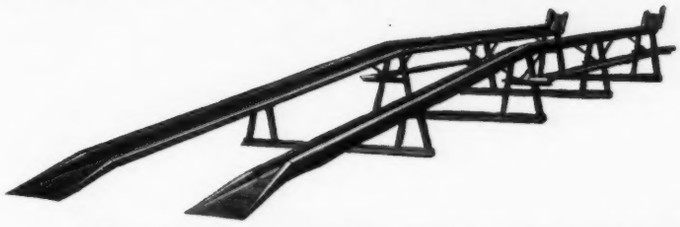

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Eastern Domestic Markets

Shading of Gasoline Prices Reported

Staff Special
NEW YORK, June 7

GASOLINE prices were unchanged in all sections of Eastern markets during the week ended June 7. Shading of posted prices was reported in some districts and spot demand was light. Contract orders moved out promptly. Kerosene prices were 0.25 cent lower in all sections of the market.

Weather conditions were excellent for gasoline consumption all along the seaboard, yet refiners in all districts continued to report demand light. At New York gasoline prices were unchanged although there was some shading reported. One seller said he had done some business at 8.50 cents in barge and tank car. He was getting 8.75 cents for the majority of his shipments, however. This business was not representative of the market.

Baltimore sellers reported some shading late in the week. One refiner was said to have sold several accounts at 8.625 cents. This compares with the general market of 9 cents for U. S. Motor and 9 to 9.25 cents for California U. S. Motor. The report could not be confirmed.

New England prices were being shaded by one seller who made no distinction in price between California gasoline and regular U. S. Motor. This seller was reported to be operating mostly in Maine.

One New England refiner reported he had sold two small cargoes of gasoline for shipment into Canada. Each cargo was for approximately 250,000 gallons—a trifle more than a barge load—and was to move immediately.

In other districts demand was light and prices were unchanged over a week ago. Philadelphia refiners reported they had heard of some price shading but could not locate the source definitely. Jacksonville prices were stiffening.

The gasoline market presented somewhat of a puzzle to the trade. They expected a substantial increase in spot shipments with good weather but shipments were no larger even though the weather in some instances reached record-breaking levels.

Many jobbers were still disposing of gasoline bought in May and some of the trade believed this the reason. Others said most of their jobbers had contracted for the entire month of June and were ordering nothing aside from their contract requirements. Some of these contracts were said to be "blanket contracts," that is the jobber would be covered for his entire requirements regardless of what they were, at a certain price.

There was one supplier of California gasoline who said that it was possible to buy gasoline on the west coast under Standard's offer of 6.50 cents, f.o.b. ship at San Pedro. This account has purchased three cargoes since the plan became effective. They were bought on a delivered basis, the price based on eastern tank wagon markets. The refiner realized 5.875 to 6.125 cents, f.o.b. the west coast, the account said. It was indicated some California refiners were unwilling to lose their east coast contacts.

Kerosene at New York sold for 7 to 7.50 cents and the market was soft. Refiners indicated further price recessions might be made. One large refiner who had been quoting 7.75 cents lowered his price June 7 to 7.25. At Baltimore and Philadelphia this commodity was quoted at 7.25 to 7.50 cents.

Gulf Coast Markets

Cut in Export Postings Rumored

Staff Special
NEW YORK, June 7

THERE was not a single inquiry circulated through either the export or domestic markets the past week to brighten the horizon of the Gulf operator. Prices were unchanged although there was a rumor that Association posting might be reduced.

The rumor that the Association was contemplating a reduction was heard June 2. It came from a trader in close touch with Association activities, but a member said that no reduction was being contemplated. There was no mention made of the amount of reduction. The informant believed it would apply only to gasoline. As far as could be learned no action was taken on the matter at an Association meeting a day or so later in New York.

The report was disheartening to the trade. With the peak of the consuming season just around the corner many of them thought prices would advance or at least hold. On the other hand there were some who believed that a reduction was on the way. They believed it would be the only way to ward off a wave of "bootleg operations" in the Mid-Continent; also that it would tend to retard the rate of operation of Mid-Continent refineries, and thus rectify the present situation brought about by over-production of gasoline. Cargoes sold abroad at "bootleg" prices have numbered approximately 30 since the first of the year, some traders believed.

There was a report also that some members of the Association were less keen to buy surplus gasoline in the Mid-Continent, now, than they were some weeks ago. It was obvious to the trade that this practice was adopted to stabilize the Mid-Continent market. When members of the Association who have been buying out there for several months found that refiners were not holding production in line with demand, some of them became a bit irked and threatened to withhold their support. It was this situation that was believed responsible for the purchase of only 8,000,000 gallons of gasoline for June shipment, instead of 14,000,000 gallons which, according to reports, these members previously intended to purchase.

The Royal Dutch Shell group may add to the support it is now giving the Association, a Gulf operator has indicated. This informant said that Sir Henri Deterding had signified his intention of purchasing in the Mid-Continent in times of surplus and distributing his purchases abroad. Thus the chances for buying at prices laid down at the Gulf under Association postings would be minimized further.

At present Gulf refiners and others active in the Gulf market, look for no activity from abroad. Independent refiners in Roumania were said to be offering cheap gasoline and foreign refiners were turning to them to fill their needed requirements. The majority of foreign refiners and a good many marketers were believed long of gasoline stocks.

Wax Markets

Pessimism Continues

NEW YORK, June 7.—Demand for waxes was practically nil the past week. As a result prices for all grades were 0.125 to 0.375 cent lower in the New York and New Orleans sections of the market. A few buyers sought goods for forward shipment but continued to bid extremely low prices.

White crude scale waxes were offered at 2.25 cents at the end of the week. The high quotations ranged upward to 2.50 cents. This was in both the New York and New Orleans markets. Yellow crude scale also was offered at 2.25 cents with some refiners asking 2.375 cents.

New Orleans markets for fully refined waxes were slightly lower than those at New York. There was very little trading in fully refined waxes although some inquiry was reported for 125-127 A.m.p. This grade was quoted at 3.375 to 3.50 cents at New York and at 3.25 to 3.375 cents at the Gulf. Some traders in both markets were of the opinion the low prices could be shaded with firm business.

English buyers were about the only ones to show any interest in the market. They bid low prices for shipment over the last half of the year in some cases and in others offered today's market for the next six months. There were no refiners interested in taking this business. They displayed the attitude of recent weeks in that respect.

On the other hand some traders said there was no interest even from United Kingdom buyers. They believed that the market now belonged solely to the buyer and that refiners would not turn down business "as long as the price was within reason." Some were reported very anxious to move wax and were requesting bids instead of making offers.

The Bureau of Mines report for April did not paint a very bright picture. Refiners made a valiant effort to bring production more in line with demand and manufactured 7,280,000 pounds less wax than they did in March. However, there was no buying and the result was that stocks increased 9,612,000 pounds. This brought total storage up to 241,853,000 pounds, the greatest in recent years.

This report combined with existing conditions abroad caused continued pessimism about the future of markets. The general opinion was that prices would continue to drift downward gradually in the next few weeks. Some of the trade did not look for relief from the present situation until fall when foreign buyers become active for their winter requirements.

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Complete Seaboard Market

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Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in some states.)

U. S. MOTOR GASOLINE	Prices June 9	Prices June 2	Prices May 26
New York harbor	8.75 – 9.00	8.75 – 9.00	9.00
Portland district	*10.30	*10.30	*10.30
Boston district	*10.00	*10.00	*10.00
Providence district	*10.00	*10.20	*10.20
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00	9.00	9.00
Norfolk district	9.00	9.00	9.00
Charleston district	9.00	9.00	9.00
Savannah district	9.00	9.00	9.00
Jacksonville district	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	9.00 – 9.50	9.00 – 9.50	9.25 – 9.50
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
‡DOMESTIC AVIATION GASOLINE			
New York harbor	12.00 –13.00	12.00 –13.00	12.00 –13.00
Philadelphia	12.00	12.00	12.00
Baltimore	12.00 –12.50	12.00 –12.50	12.00 –12.50
Boston	11.50 –13.00	11.50 –13.00	11.50 –13.00

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167°F., and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

WATER WHITE KEROSENE			
New York harbor	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
Philadelphia district	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
Baltimore district	7.25 – 7.75	7.25 – 7.75	7.25 – 7.75
GAS OIL: 28-34 Gravity			
New York harbor	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
Boston district	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Boston district	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York Harbor	$1.15	$1.15	$1.15
Boston district	$1.15	$1.15	$1.15
DIESEL OIL			
New York harbor	$2.00 –$2.10	$2.00 –$2.10	$2.00 –$2.10

*Minimum delivered. †Nominal. **Delivered prices.

New York Export Market

(Lubricating oils are per gal. in bbls. F.a.s. New York)

	June 9	June 2	May 26
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	39.00 –39.50	40.50 –42.00	41.50 –43.50
600 D filtered	35.00 –37.00	37.00 –38.50	38.50
600 Warren E filtered	30.50 –31.00	31.50 –32.25	32.25 –33.50
600 s.r. unfiltered	23.50 –25.00	25.50 –27.00	26.25 –27.50
650 s.r. unfiltered	27.00 –28.00	29.00 –31.50	32.75 –35.00
600 flash, s.r.	29.50 –32.00	31.50 –33.00	35.00 –36.50
630 flash, s.r.	38.50 –40.00	40.50 –43.00	40.50 –43.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	19.00 –21.00	19.00 –21.00	20.00 –21.00
250 vis. No. 6 color	17.50 –18.50	17.50 –18.50	17.50 –18.50
200 vis. No. 6 color	16.00 –17.00	16.00 –17.00	16.50 –17.50
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	22.00	22.00	23.00 –24.00
180 vis. No. 3¼ color	17.50 –18.00	17.50 –18.00	19.00
100 vis. No. 2¼ color	14.25 –15.50	14.25 –15.50	15.50 –16.00
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	30.00 –32.00	30.00 –32.00	30.00
500 vis. No. 6½ color	27.50 –30.00	27.50 –30.00	26.50 –27.50
400 vis. No. 7¼ color	26.00 –29.00	26.00 –29.00	23.00 –25.00
300 vis. No. 6 color	22.00 –26.00	22.00 –26.00	20.00 –22.00
200 vis. No. 6 color	21.00 –23.50	21.00 –23.50	18.00 –20.00

Wax Markets

(Prices in cents per pound, A.S.T.M. tests) A.M.P. F.a.s. carload lots)

NEW YORK	June 9	June 2	May 26
124-126 Yellow crude scale	2.25 – 2.375	2.35 – 2.375	2.375
122-124 White crude scale	2.25 – 2.50	2.35 – 2.50	2.40 – 2.50
124-126 White crude scale	2.25 – 2.50	2.35 – 2.50	2.40 – 2.50
123-125 Fully refined	3.25	3.50	3.50 – 3.625
125-127 Fully refined	3.375– 3.50	3.625	3.75
128-130 Fully refined	3.625	3.875	3.875– 4.00
130-132 Fully refined	3.875– 4.125	4.125– 4.25	4.25 – 4.50
133-135 Fully refined	4.625– 4.875	5.00	5.00
135-137 Fully refined	4.875– 5.00	5.125– 5.25	5.50
NEW ORLEANS			
124-126 Yellow crude scale	2.25 – 2.375	2.35 – 2.375	2.375
122-124 White crude scale	2.25 – 2.50	2.35 – 2.50	2.40 – 2.50
124-126 White crude scale	2.25 – 2.50	2.35 – 2.50	2.40 – 2.50
123-125 Fully refined	3.25 – 3.50	3.375– 3.50	3.50
125-127 Fully refined	3.25 – 3.375	3.50	3.50 – 3.75
128-130 Fully refined	3.50 – 3.625	3.75	3.75 – 4.00
130-132 Fully refined	3.875	4.125	4.25 – 4.375
133-135 Fully refined	4.50 – 4.625	4.75	4.75 – 5.00

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted. Bulk gasoline and kerosene prices are posted quotations of the Export Petroleum Assoc., Inc., governing about 90% of the gasoline and kerosene shipped to foreign ports from the Gulf)

GASOLINE	Prices June 9	Prices June 2	Prices May 26
U. S. Motor	8.00	8.00	8.00
60-62, 400 e.p.	9.00	9.00	9.00
61-63, 390 e.p.	9.25	9.25	9.25
64-66, 375 e.p.	9.50	9.50	9.50
U. S. Motor, cases (cargoes)	$1.85	$1.85	$1.85
64-66, cases (cargoes)	$2.00	$2.00	$2.00
KEROSENE			
44 water white	7.00	7.00	7.00
41-43 prime white	6.00	6.00	6.00
Water white, cases (cargoes)	$1.75	$1.75	$1.75
Prime white, cases (cargoes)	$1.65	$1.65	$1.65
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
*30 plus translucent gas oil	3.75 – 4.00	3.75 – 4.00	3.875– 4.00
Grade C bunker oil	$1.05	$1.05	$1.05
Grade C bunker oil, cargoes	$0.75 –$0.85	$0.75 –$0.85	$0.75 –$0.80

***Less than ½ of 1% sulphur**

MEXICAN CRUDE AND BUNKER OILS (f. o. b. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.68 –$0.70	$0.68 –$0.70	$0.68 –$0.70
Grade C bunker oil for bunkering purposes, taxes paid	$1.00	$1.00	$1.00

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0 Tanker, f. o. b. Houston)			
100 vis. No. 2 unfiltered pale	5.75 – 6.125	5.75 – 6.125	5.75 – 6.125
200 vis. No. 3 unfiltered pale	8.00 – 8.75	8.00 – 8.75	8.00 – 8.75
300 vis. No. 3 unfiltered pale	8.875– 9.50	8.875– 9.50	8.875– 9.50
500 vis. No. 3½ unfiltered pale	10.25 –11.25	10.25 –11.25	10.25 –11.25
750 vis. No. 4 unfiltered pale	12.50 –13.25	12.50 –13.25	12.50 –13.25
1200 vis. No. 5 unfiltered pale	16.00 –18.00	16.00 –18.00	16.00 –18.00
200 vis. No. 5-6 red oil	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
300 vis. No. 5-6 red oil	8.375– 8.75	8.375– 8.75	8.375– 8.75
500 vis. No. 5-6 red oil	9.25 – 9.50	9.25 – 9.50	9.25 – 9.50
750 vis. No. 5-6 red oil	11.50	11.50	11.50
1200 vis. No. 5-6 red oil	15.00 –15.50	15.00 –15.50	15.00 –15.50

Gulf Domestic Market

(Prices are f.o.b. Gulf oil terminals in Texas and Louisiana in shipments of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only.)

	June 9	June 2	May 26
U. S. Motor gasoline	7.50	7.50	7.50
41-43 w.w. kerosene	5.875– 6.00	5.875– 6.00	5.875– 6.25
*26-32 translucent gas oil	3.75 – 4.00	3.75 – 4.00	3.75 – 4.00

*Less than ½ of 1% sulphur.

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	June 9	June 2	May 26
Gasoline, U. S. Motor, 53-55 Gravity	6.50 – 7.50	6.50 – 7.50	6.50 – 7.50
Gasoline, U. S. Motor-blends and special cuts	7.25 – 8.25	7.25 – 8.25	7.25 – 8.25
Gasoline, 400 e.p. blends	8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
Gas Oil, 30-34, per bbl.	$0.80 –$1.00	$0.80 –$1.00	$0.80 –$1.00
Diesel Oil, 27 plus, per bbl.	$0.75 –$0.90	$0.75 –$0.90	$0.75 –$0.90
Bunker oil, 14-18, per bbl.	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
Fuel oil, 14-18 per bbl.	$0.55 –$0.85	$0.55 –$0.85	$0.55 –$0.85
Kerosene, 38-40 w.w., 125-150 flash, per gal.	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Gasoline, 400 e.p.	$1.85 –$2.00	$1.85 –$2.00	$1.85 –$2.00
Kerosene, 38-40 w.w., 125-150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Note: Above Pacific Export market prices for gasoline and kerosene in cargo lots apply only on goods for coastwise shipment. Gasoline and kerosene prices for shipment to foreign ports are determined as follows: Difference in freight between U. S. Gulf to European Continent and California to European Continent —this difference plus 0.125c for handling, deducted from prices posted at U. S. Gulf by the Export Petroleum Assoc., Inc., which are above prices.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	June 9	
	Crude & /or Fuel	Refined Oil & /or Spirits
Calif. to U. K. or Continental ports*	35-37	35–37
Gulf to U. K. or Continental ports*	26–28	25
North Atlantic to U. K. or Continental ports*	23/6-25	22/6
Calif. to North Atlantic ports (not E. of N. Y.)	$.80-$0.90	$0.90
Gulf to North Atlantic ports (not E. of N. Y.)**	32–35	33–35

*Continental ports in the range between Bordeaux and Hamburg, both inclusive. **Venezuela loading same rate. For Tampico 3c to 4c per bbl. additional.

The Colonial Oil Corporation uses this 6-ton, 6-cylinder Autocar tractor (Model SCHT) with 2500 gallon semi-trailer and 1500-gallon trailer to replace rail deliveries to all points within 75 miles of its base at Norfolk, Virginia.

"Which if placed end to end.."

Leave it to the statisticians. They will tell you how many drops in a gallon and how far all these drops would reach if multiplied by 4000 and placed end to end.

Autocars have faithfully performed heavy duty delivery work for the Colonial Oil Corporation at Norfolk, Virginia, for years. Early in 1930 rail deliveries of gasoline within 75 miles of Norfolk were obsoleted by Colonial. The equipment that turned the trick was a powerful new precision-built Autocar tractor, pulling semi-trailer and trailer units totalling 4000 gallons capacity.

The results were immediate—bettered service, lowered delivery costs. No truck is better qualified to give these results on heavy duty work than the Autocar.

FREE

An 8 x 10 mounted print, suitable for framing, of the modern Autocar "Blue Streak" Six photograph taken by Richard T. Dooner, one of America's leading photographers. The Autocar "Blue Streak" Six, precision-built to meet today's needs for full load performance at any speed over longer periods, is the last word in an ultra-modern power plant for ultra-modern motor trucks.

PRECISION BUILT

AUTOCAR TRUCKS

The AUTOCAR Company, Ardmore, Pa., Established 1897

Tank Wagon, Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect June 9, 1930, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Newark, N. J.	13.5	2	15.5	17.5	12.5
Annapolis	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Cumberland, Md.	15	4	19	21	14
Washington, D. C.	13.7	2	15.7	17.7	12.7
Danville, Va.	14.3	5	19.8	21.8	13.8
Norfolk, Va.	13.3	5	18.3	20.3	12
Richmond, Va.	13.7	5	18.7	20.7	12.7
Roanoke, Va.	15	5	20	21	14
Petersburg, Va.	14.3	5	19.3	21.3	13.3
Charleston, W. Va.	14.5	4	18.5	20.5	12 5
Keyser, W. Va.	15.1	4	19.1	21.1	14.1
Parkersburg, W. Va.	13.2	4	17.2	19.2	11.2
Wheeling, W. Va.	14.4	4	18.4	20.4	12.4
Charlotte, N. C.	15.3	5	20.3	22.3	14.3
Hickory, N. C.	15.8	5	20.8	22.8	14.8
Mt. Airy, N. C.	15.5	5	20.5	22.5	14.5
Salisbury, N. C.	15.7	5	20.7	22.7	14.7
Charleston, S. C.	13.3	6	19.3	21.3	12.3
Columbia, S. C.	15.2	6	21.2	23.2	14.2

Note: 2c per gallon discount off t.w. price of gasoline to dealers and commercial consumers thru S. O. New Jersey territory.

CONTINENTAL OIL

Denver, Colo.	12	4	16	19	15.5
Pueblo, Colo.	14	4	18	21	15.5
Grand Junc., Colo.	19	4	23	26	19
Casper, Wyo.	15	4	19	22	14
Cheyenne, Wyo.	16.5	4	20.5	23.5	15.5
Butte, Mont.	19.5	5	24.5	27.5	20
Helena, Mont.	19.5	5	24.5	27.5	20
Salt Lake City, Utah	16.5	3½	20	23	17
Boise, Ida.	18.5	5	23.5	26.5	19
Twin Falls, Ida.	18.5	5	23.5	27.5	19
Albuquerque, N. M.	16	5	21	24	15

S. O. CALIFORNIA

				*Plant	
Phoenix, Ariz.	13	4	17	21	20
Los Angeles, Cal.	18.5	3	21.5	24.5	15.5
Fresno, Cal.	19	3	22	25	17
San Francisco, Cal.	19	3	22	25	15.5
Reno, Nev.	23	4	27	30	19
Portland, Ore.	19.5	4	23.5	26.5	16.5
Seattle, Wash.	19.5	3	22.5	25.5	16.5
Spokane, Wash.	23.5	3	26.5	29.5	20.5
Tacoma, Wash.	19.5	3	22.5	25.5	16.5

Note: 6c per gal. discount to dealers off t.w. price of gasoline to customers taking tank truck delivery, thru S. O. California territory except 1c discount at Phoenix to dealers only.

*Prices in the fourth column represent retail sale prices of gasoline for delivery into fuel tanks of customers' automotive equipment at S. O. California refineries, terminals and district depots as this company operates no retail service stations.

S. O. LOUISIANA

Little Rock, Ark.	13	5	18	19	13
Alexandria, La.	13	4	17	17	†14
Baton Rouge, La.	12	4	16	17	†14
Lake Charles, La.	11	*5	16	16	†14
New Orleans, La.	11	*5	16	16	†12
Shreveport, La.	12	4	16	18	†14
Lafayette, La.	13	*5	18	20	†14
Bristol, Tenn.	15	5	20	22	14
Chattanooga, Tenn.	15	5	20	22	13
[illegible]ville, Tenn.	15	5	20	22	16
Nashville, Tenn.	14	5	19	21	16
Memphis, Tenn.	13	5	18	20	12.5

Note: 2c per gallon discount off t.w. price of gasoline to dealers thru S. O. Louisiana territory.

*Lake Charles, New Orleans and Lafayette gasoline tax includes 4c state tax and 1c parish tax. New Orleans kerosene price includes 1c parish tax in addition to 1c state tax.

†Kerosene price in Louisiana includes 1c state tax.

S. O. KENTUCKY

Ashland, Ky.	14	5	19	21	15
Catlettsburg, Ky.	15	5	20	21	15
Lexington, Ky.	14	5	19	20	14.5
Louisville, Ky.	15	5	20	22	13
Covington, Ky.	16	5	21	22	14.5
Clarksdale, Miss.	14	5	19	21	12.5
Gulfport, Miss.††	16.5	5	21.5	23.5	13
Jackson, Miss.	15	5	20	22	13
Natchez, Miss.	14.5	5	19.5	21.5	13
Vicksburg, Miss.	14.5	5	19.5	21.5	13
Birmingham, Ala.‡‡	16	4	20	22	14.5
Mobile, Ala.‡	14	4	18	18	13.5
Montgomery, Ala.*	17	4	21	23	15
Atlanta, Ga.	15	6	21	23	†15.5
Augusta, Ga.	14	6	20	22	†15.5
Macon, Ga.	16	6	22	24	†14
Savannah, Ga.	15	6	21	23	†14
Jacksonville, Fla.	15	6	21	23	14
Miami, Fla.	16	6	22	24	14

Latest Changes in Tank Wagon Prices

Gasoline

Atlantic Refining—Discount rate on gasoline to dealers in Erie has been 4c off t.w. price since May 28 when s.s. price was cut to 15c, without tax, the same as t.w. price.

S. O. Ohio—T.w. up 1c, s.s. 2c, Kinsman, Vernon and Hartford townships, all in Trumbull county, to statewide prices of 20c and 21c, **June 9.**

S. O. Kentucky—T.w. and s.s. up 1c, Covington, to 21c and 22c, **May 30.**

S. O. Indiana—The Chicago Q. D. A. was revised. Those companies taking over 500 gals. per month get 4c off s.s. price and those taking over 1000 gals. per month get 5c off s.s. price **June 3.**

Continental Oil—T.w. and s.s. cut 1c, Denver, to 16c and 19c, **May 31.**

Aviation gasoline was cut 1c at Denver to 19c t.w., **May 31.**

Magnolia Petroleum—T.w. and s.s. cut 2c Fort Worth, to 14c and 17c, **June 3.**

T.w. and s.s. cut 1c, San Antonio, to 14c and 18c, **June 3.**

Kerosene

Continental Oil—Kerosene cut 2c, Albuquerque, to 15c t.w., **April 4.**

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Tampa, Fla.	15	6	21	23	13
Pensacola, Fla.**	13	6	19	21	13.5

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

‡Mobile gasoline prices include 1c city tax.

‡‡Birmingham gasoline prices include 1c city tax.

S. O. NEBRASKA

Omaha, Neb.	15.25	4	19.25	21.25	13.25
McCook	16.75	4	20.75	22.75	14.75
Norfolk	15.75	4	19.75	21.75	13.75
North Platte	16.75	4	20.75	22.75	14.50
Scottsbluff	16.75	4	20.75	22.75	14.25

Note: Discounts: 1c per gal. off tank wagon price of gasoline for 1,000 gallon dumps per month to consumers taking tank wagon delivery only.

S. O. INDIANA

Chicago, Ill.	15	3	18	19	13
Decatur, Ill.	15.2	3	18.2	19.2	13.1
E. St. Louis, Ill.	14.4	3	17.4	18.4	12.2
Joliet, Ill.	15.4	3	18 4	19 4	13.3
Peoria, Ill.	15.2	3	18.2	19.2	13.1
Quincy, Ill.	15.2	3	18 2	19 2	12.9
Indianapolis, Ind.	15.2	4	19.2	20.2	14.2
Evansville, Ind.	15	4	19	20	14
South Bend, Ind.	15.4	4	19.4	20.4	14.4
Detroit, Mich.	15.8	3	18.8	19 8	14.7
Grand Rapids, Mich.	15.7	3	18.7	19.7	14.6
Saginaw, Mich.	15.9	3	18 9	19.9	14.8
Green Bay, Wisc.	15.6	2	17.6	18.6	13.4
Madison, Wisc.	15.3	2	17.3	18.3	13.1
Milwaukee, Wisc.	15.1	2	17.1	18.1	12.9
La Cross, Wisc.	16.2	2	18.2	19.2	14
Minneapolis, Minn.	16.2	3	19.2	20.2	13.9
Duluth, Minn.	16.5	3	19.5	20.5	13.9
Mankato, Minn.	16.1	3	19 1	20.1	13.7
Des Moines, Ia.	15.5	3	18.5	19.5	13.3
Davenport, Ia.	15.5	3	18.5	19.5	13.3
Sioux City, Ia.	15.1	3	18.1	19.1	12.9
Mason City, Ia.	15.5	3	18.5	19.5	13.3
St. Louis, Mo.	*14.9	2	16.9	17.9	12.3
Kansas City, Mo.	†15.9	2	17.9	18.9	11.6
St. Joseph, Mo.	†15.5	2	17.5	18.5	12.2
Fargo, N. D.	17.9	3	20.9	21.9	15.9
Grand Forks, N. D.	18.2	3	21.2	22.2	16.2
Minot, N. D.	17.9	3	20.9	21.9	15.9
Pierre, S. D.	16	4	20	21	14.4
Huron, S. D.	16.3	4	20.3	21.3	14.7
Wichita, Kans.	13.8	3	16.8	14.8	11.8
Bartlesville, Okla.	13.5	4	17.5	20.5	11.5

S. O. Indiana's quantity contract price schedule thru territory (except in Chicago and Detroit, which see below) on tank truck deliveries of gasoline, figured from the service station price is 2c for 500 gals. or more a month; 2½c for 2,000 gals. or more a month; 3c for 6,000 gals. or more a month; and 4½c for 75,000 gals. or more a month.

In Chicago and vicinity, these discounts apply: Over 500 gals. per month, 4c per gal. off service station price; over 1,000 gals. per month, 5c per gal. off service station price.

In Detroit, dealers and consumers signing contract for all gasoline for one year, get 4c per gal. off s.s. price. Non-contracted accounts get 3c off s.s. price. Those buying 75,000 gals. or more a month, 4½c per gal. off s.s. price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Ohio state wide	16	4	20	21	†14
Athens, Hancock, Jackson, Muskingum, Perry, and Preble Counties:	15	4	19	19	14
Franklin (except Columbus west of river)	13	4	17	17	14

Note: Discount to dealers and commercial accounts generally thru Ohio is 2c per gal. off t.w. price with some exceptions. In counties where prices are below normal, discount is 3c per gal. off t.w. price.

†Kerosene t.w. price in Paulding County is 12c.

MAGNOLIA PETROLEUM

Muskogee, Okla.	12	4	16	19	9
Oklahoma City	12	4	16	19	10
Tulsa, Okla.	12	4	16	20	10
Fort Smith, Ark.†	10	†4	14	15	12
Little Rock, Ark.	13	5	18	19	13
Texarkana, Ark.*	10	4	14	15	12*
Dallas, Tex.	10	4	14	18	12
Fort Worth, Tex.	10	4	14	17	12
Houston, Tex.	11	4	15	19	11
San Antonio, Tex.	10	4	14	18	11
El Paso, Tex.	12	4	16	20	13

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

Greater New York City:					
Boroughs of Manhattan, Bronx, Queens & Kings	14.3	2	16.3	18.3	11.3
Borough of Richmond	14.7	2	16.7	18.7	11.7
Albany, N. Y.	15.6	2	17.6	19.6	12.6
Buffalo, N. Y.	14.8	2	16.8	18.8	11.8
Rochester, N. Y.	15	2	17	19	12
Syracuse, N. Y.	15.8	2	17.8	19.8	12.8
Boston, Mass.	14.5	2	16.5	18.5	11.5
Augusta, Me.	15.8	4	19.8	21.8	12.8
Manchester, N. H.	15.4	4	19.4	21.4	12.4

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Florida, 1/8c on both; Illinois, 3/100c on both; Indiana, 4/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 3/10c to 1/2c on both; Nebraska, 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only, per gallon; Iowa 7/100c; Michigan 1/5c to 4/5c per gal.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

Prices in Effect June 9, 1930

S. O. NEW YORK

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Burlington, Vt.	16.3	4	20.3	22.3	13.3
New Haven, Conn.	15.6	2	17.6	19.6	12.6
Providence, R. I.	14.7	2	16.7	18.7	11.7

Note: S. O. New York allows 3c off t.w. price to dealers in New York City, and 2c off t.w. price thru rest of territory.

ATLANTIC REFINING

Pittsburgh, Pa.	16	*	16	22	13
Philadelphia, Pa.	16	*	16	22	13
Allentown, Pa.	16	*	16	22	13
Erie, Pa.	15	*	15	19	13
Scranton, Pa.	16	*	16	22	13
Altoona, Pa.	16	*	16	22	13
Dover, Del.	16	3	19	21	13
Wilmington, Del.	16	3	19	21	13
Boston, Mass.	14.5	2	16.5	18.5	11.5
Springfield, Mass.	15.5	2	17.5	19.5	12.5
Worcester, Mass.	15.3	2	17.3	19.3	12.3
Fall River, Mass.	14.1	2	16.1	17.1	12.1
Providence, R. I.	14.7	2	16.7	18.7	11.7
Hartford, Conn.	15.5	2	17.5	19.5	12.5
New Haven, Conn.	15.6	2	17.6	19.6	12.6
Atlantic City, N. J.	14.5	2	16.5	18.5	13.5
Camden, N. J.	13.6	2	15.6	17.6	12.6
Trenton, N. J.	14	2	16	18	13
Annapolis, Md.	14	4	18	20	13
Baltimore, Md.	13.2	4	17.2	19.2	10.5
Hagerstown, Md.	14.7	4	18.7	20.7	13.7
Richmond, Va.	13.7	5	18.7	20.7	12.7
Wilmington, N. C.	13.4	5	18.4	20.4	12.4
Brunswick, Ga.	15	6	21	23	**15
Jacksonville, Fla.	15	6	21	23	14

Note: 2c per gal. discount off t.w. price of gasoline on sales to dealers: discount to commercial accounts under contract for one year in accordance with Code of Ethics. Erie has dealer discount of 4c off t.w. price, effective May 28.

*4-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosene prices include 1c state tax.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	14.7	16.7	17
Detroit	17.4	18.9	20.7
Kansas City	†15.9	†17.4	†19.2
Milwaukee	16.4	*19.9	*21.7
Minneapolis	**20.7	**22.2	**24
St. Louis	13.9	17.1	18.9
New York		16	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)	
New York harbor	11.00
Philadelphia district	11.00
Providence	11.50
Tank Wagon or Steel Barrels	
New York City	18
Syracuse	17–18
Rochester	18
Buffalo	17–18
Providence	19
Boston	19
Bridgeport	16–18
Newark	18
Philadelphia	16–17
Baltimore	18

Note: 2c off above t.w. prices to large buyers in some instances.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Toronto	19.5	5	24.5	28	20.5
Ottawa	19.5	5	24.5	28	20.5
North Bay	22.5	5	27.5	33	27
Ft. William	22.5	5	27.5	31	22.5
Border Cities, including Windsor	18.5	5	23.5	27	19.5
MANITOBA					
Winnipeg	21	5	26	30	21 5
SASKATCHEWAN					
Regina	26	5	31	35	26
ALBERTA					
Edmonton	27.5	5	32.5	36	27 5
Calgary	23.5	5	28.5	32	23 5
BRITISH COLUMBIA					
Vancouver	23	5	28	32	24
QUEBEC					
Montreal	20.5	5	25.5	29	21.5
Quebec City	21.5	5	26.5	30	22.5
Three Rivers	21.5	5	26.5	30	22.5
NEW BRUNSWICK					
St. John	20	5	25	29	22
Moncton	20	5	25	29	22
NOVA SCOTIA					
Halifax	20	5	25	29	22
PRINCE EDWARD ISLAND					
Charlottetown	20	5	25	29	22

Note: In districts surrounding these points 1c additional is added to city price.

Aviation Gasoline Prices

Following are tank wagon prices of aviation gasoline in principal marketing territories and showing state and municipal taxes:

S. O. NEW JERSEY

Prices in Effect June 9, 1930

	T.W.	Tax	Total
Newark, N. J.	17.4	*	17.4
Baltimore, Md.	16.2	4	20.2
Washington, D. C.†	19.5	2	21.5

*New Jersey road tax of 2c does not apply on aviation gasoline, exemption being claimed at time of purchase.

†Price at Washington is on Stanavo Aviation gasoline which sells at a 2c premium over "Standard" aviation gasoline.

S. O. OHIO

Thru Ohio	18	4	22

Discounts given by S. O. Ohio: For airport delivery only: 2,000 gals. or over per month, 1c per gal.; 6,000 gals. or over per month, 2c; 12,000 gals. and over per month, 3c.

S. O. INDIANA

Chicago	17	3	20
Indianapolis, Ind.	17.2	4	21.2
Detroit, Mich.	17.8	3	20.8
Milwaukee, Wis.	17.1	2	19.1
Minneapolis, Minn.	18.2	3	21.2
St. Louis, Mo.	16.4	2½	18.9
Kansas City, Mo.	16.9	3	19.9
Fargo, N. D.	19.9	3	22.9
Huron, S. D.	18.3	4	22.3
Wichita, Kan.	15.8	3	18.8

In S. O. Indiana territory, buyer pays state and city taxes on aviation gasoline, and if he can get a refund from the state, he does so. St. Louis tax of 2½c includes ½c city tax and Kansas City tax includes 1c city tax.

S. O. LOUISIANA

New Orleans, La.	16	5	21
Nashville, Tenn.	18	5	23
Memphis, Tenn.	17	5	22

2c per gal. discount off above t.w. prices to dealers and commercial consumers.

S. O. NEBRASKA

Omaha	18.25	4	22.25

2c per gal. refund to resellers.

CONTINENTAL OIL CO.

*Denver, Col.	15	4	19
Cheyenne, Wyo.	19.5	4	23.5
Helena, Mont.	25.5	5	30.5
Salt Lake City, Utah	19.5	3.5	23
†Albuquerque, N. M.	19	5	24
Boise, Ida.	22	5	27

*1c per gal. discount to dealers at Denver. †2c per gal. discount to dealers at Albuquerque.

S. O. CALIFORNIA

Phoenix, Ariz.	17	4	21
Los Angeles, Cal.	19.5	3	22.5
San Francisco, Cal.	20	3	23
Reno, Nev.	24	4	28
Portland, Ore.	19.5	4	23.5
Seattle, Wash.	19.5	3	22.5
Spokane, Wash.	23.5	3	26.5

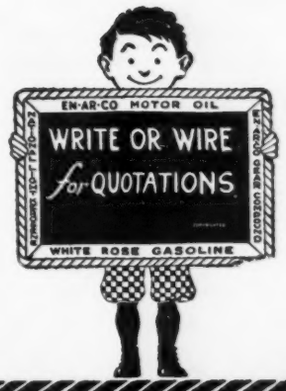
4c per gal. discount off t.w. price of gasoline to customers taking tank truck delivery, through S. O. California territory, except 1c discount at Phoenix.

Issues Regulations on Storage Tanks

CLEVELAND—Regulations for the installation of light oil storage tanks at bulk and service stations, and for domestic burner oil storage tanks are contained in the booklet "Standards of Safety" issued by the Department of Fire Prevention and Rates in Kentucky. Section 5 is on flammable liquids.

Boggs' Son Marries Movie Actress

HOLLYWOOD, Cal.—The marriage of Paul N. Boggs, Jr., son of Paul N. Boggs, who is vice president of the Union Oil Co. of California, Los Angeles, to Dorothy Dwan, former motion picture actress, took place May 23 in Hollywood. Miss Dwan is the widow of Larry Semon, film comedian.



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All grades of lubricating oils and greases.

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Cleveland, Ohio

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THE GRANBERG METER is designed for use in all branches of the petroleum industry where the accurate measurement of petroleum is required.

Its freedom of movement makes it well adapted to installations which must operate on low gravity heads.

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"Precision Meters for Petroleum Oils"
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Aqua Systems Inc., 2 Lafayette St., New York City, N. Y.
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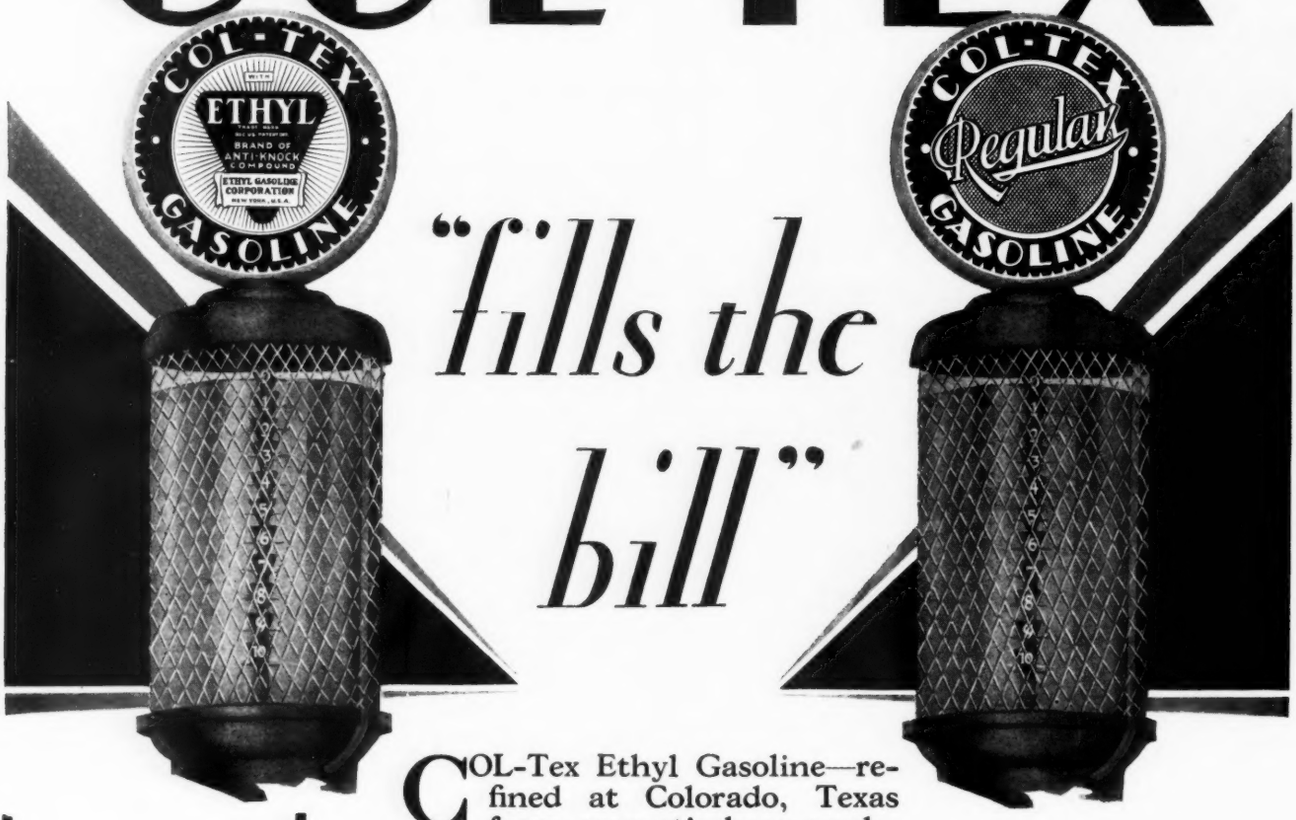
COL-TEX



"fills the bill"

COL-Tex Ethyl Gasoline—refined at Colorado, Texas from aromatic base crude, rich in natural anti-knock value, low initial and end point, made perfect by the addition of Ethyl fluid—a matchless high test and anti-knock gasoline all in one—the final answer to the requirements of the modern motor—a genuine premium gasoline.

Col-Tex Regular Gasoline—refined at Colorado, Texas, through the most modern refining and cracking facilities designed to produce a volatile, anti-knock product—better than U. S. Motor, high in natural anti-knock qualities, water white, doctor and corrosion test—the ideal, economical, all-season, all-purpose gasoline—sells for regular prices.

"Col-Tex" means modern gasoline, refined under the most modern methods to meet modern 1930 motor requirements. Gasoline, to keep pace with modern motor cars, must be constantly improved in volatility and anti-knock value.

Write for particulars on our marginal contract covering these splendid Col-Tex products, together with advertising and sales-building plan.

SPECIAL:

(Col-Tex Furnace Oil—35/6 gravity taking the gas oil rate; light straw color, low flash and end point, zero cold test, low sulphur, fully treated, doctor sweet odor, available for spot or contract shipments.)

COL-TEX REFINING COMPANY
ANDERSON-PRICHARD OIL CORPORATION

PRODUCERS AP REFINERS

OKLAHOMA CITY, OKLA.

Crude Oil Prices (in Effect June 9, 1930)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

(All Penna. Grade Crude Effective May 16, 1930)

Bradford district in Bradford Transit lines (June 2, 1930)	$2.40
Bradford—Alleghany district (posted by Tide Water Pipe Co., Ltd.)	2.40
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	*2.30
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	2.25
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	2.15
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district)	1.95
Wayne district crude in Cumberland lines (West Virginia) (Effective Apr. 11, 1930)	1.34
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective May 2, 1930)	1.75
Somerset Oil in Cumberland Pipe Lines (Kentucky) (Effective Apr. 11, 1930)	1.47
Somerset Oil in Eureka Pipe Lines (Effective Apr. 11, 1930)	1.31
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 29, 1929)	$0.60

*Oil run prior to July 1, 1929 is $2.25 per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines (Effective Apr. 18, 1930)	$1.55

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon), effective April 16, 1930, same gravity and price schedule as Prairie posts in Oklahoma and Kansas, which see below.

(Posted by Pure Oil Co.)

Midland, Midland County (June 5, 1930)	$1.55

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective Apr. 11, 1930

Wooster	$1.80	Princeton	$1.65
Lima	1.70	Illinois	1.65
Waterloo	1.20	Plymouth	1.23
Indiana	1.47	West Kentucky	1.55

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia	$2.10
Oil Springs	2.17

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.

(In Oklahoma and Kansas)

Effective Apr. 10, 1930

Below 25	$0.75	35-35.9	$1.255
25-25.9	0.80	36-36.9	1.29
26-26.9	0.85	37-37.9	1.325
27-27.9	0.90	38-38.9	1.36
28-28.9	0.95	39-39.9	1.395
29-29.9	1.00	40-40.9	1.43
30-30.9	1.05	41-41.9	1.465
31-31.9	1.10	42-42.9	1.50
32-32.9	1.15	43-43.9	1.535
33-33.9	1.185	44 and above	1.57
34-34.9	1.22		

(In North Texas: Ranger, Wichita Falls, Mexia)

Effective Apr. 10, 1930

Below 25	$0.72	30-30.9	$1.02
25-25.9	0.77	31-31.9	1.07
26-26.9	0.82	32-32.9	1.12
27-27.9	0.87	33-33.9	1.17
28-28.9	0.92	34-34.9	1.22
29-29.9	0.97	35-35.9	1.255
36-36.9	$1.29	41-41.9	$1.465
37-37.9	1.325	42-42.9	1.50
38-38.9	1.36	43-43.9	1.535
39-39.9	1.395	44 and above	1.57
40-40.9	1.43		

The Texas Co., same schedule in Oklahoma as Prairie in Oklahoma; and in North Texas, North Central Texas and Central Texas same as Prairie and Humble in North Texas, effective Apr. 10.

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

Humble's prices in above fields same as Prairie's prices in North Texas, effective Apr. 10, which see.

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

Below 26	$0.70	28-28.9	$0.88
26-26.9	0.76	29-29.9	0.95
27-27.9	0.82	30-30.9	1.02

Rest of Magnolia schedule up to 44 and above same as Prairie in Oklahoma and Kansas.

Apr. 10, 1930, Glasscock, Crane, Upton, Winkler, Howard and Mitchell Counties same prices as Humble's postings in Winkler, Crane, etc., which see

Corsicana heavy	$0.80
Luling	0.85
Mirando	0.85
Darst Creek, 60° F. gravity	1.15

Carter Oil Co.

(Oklahoma and Kansas)

Apr. 10, 1930, same schedule as Prairie, which see.

PANHANDLE TEXAS

Humble Oil & Refining Co.

Effective Apr. 10, 1930

Hutchinson and Carson Counties:

Below 32	$0.775	38-38.9	$1.065
32-32.9	0.825	39-39.9	1.10
33-33.9	0.875	40-40.9	1.135
34-34.9	0.925	41-41.9	1.17
35-35.9	0.96	42-42.9	1.205
36-36.9	0.995	43-43.9	1.24
37-37.9	1.03	44 and above	1.275

Gray County:

Below 29	$0.755	37-37.9	$1.16
29-29.9	0.805	38-38.9	1.195
30-30.9	0.855	39-39.9	1.23
31-31.9	0.905	40-40.9	1.265
32-32.9	0.955	41-41.9	1.30
33-33.9	1.005	42-42.9	1.335
34-34.9	1.055	43-43.9	1.37
35-35.9	1.09	44 and above	1.405
36-36.9	1.125		

Wheeler County: Posted by Magnolia Pet. Co. Humble withdrew Wheeler county postings Apr. 10.

Below 30	$0.755	37-37.9	$1.11
30-30.9	0.805	38-38.9	1.145
31-31.9	0.855	39-39.9	1.18
32-32.9	0.905	40-40.9	1.215
33-33.9	0.955	41-41.9	1.25
34-34.9	1.005	42-42.9	1.285
35-35.9	1.04	43-43.9	1.32
36-36.9	1.075	44 and above	1.355

Above prices met by The Texas Co. and Magnolia on Apr. 10.

WEST TEXAS AND NEW MEXICO

Humble Oil & Refining Co.

Effective Apr. 10, 1930

Winkler, Crane, Upton, Crockett, Ector, and Pecos Counties, also Lea County, N. Mex.

Below 25	$0.65	31-31.9	$0.86
25-25.9	0.68	32-32.9	0.89
26-26.9	0.71	33-33.9	0.92
27-27.9	0.74	34-34.9	0.95
28-28.9	0.77	35-35.9	0.98
29-29.9	0.80	36 and above	1.01
30-30.9	0.83		

Howard and Glasscock counties:

Effective Apr. 10, 1930

Below 25	$0.65	31-31.9	$0.82
25-25.9	0.68	32-32.9	0.84
26-26.9	0.71	33-33.9	0.86
27-27.9	0.74	34-34.9	0.88
28-28.9	0.76	35-35.9	0.90
29-29.9	0.78	36 and above	0.92
30-30.9	0.80		

Apr. 10, 1930, The Texas Co. posted same prices in Crane, Upton, Winkler and Lea counties as Humble.

SOUTH AND SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)

Effective Apr. 10, 1930

Mirando	$0.85
Salt Flat	1.15
Darst Creek	1.15
Pettus, Bee County	1.40

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, and Sabine.

Effective Apr. 11, 1930

Below 28	$0.87	36-36.9	$1.29
28-28.9	0.92	37-37.9	1.325
29-29.9	0.97	38-38.9	1.36
30-30.9	1.02	39-39.9	1.395
31-31.9	1.07	40-40.9	1.43
32-32.9	1.12	41-41.9	1.465
33-33.9	1.17	42-42.9	1.50
34-34.9	1.22	43-43.9	1.535
35-35.9	1.255	44 and above	1.57

Cotton Valley, Sarepta and Carterville below 36 gravity, $0.85. Rest of schedule same as Caddo, Homer, etc.

Smackover, below 24	$0.90
do 24 and above	1.05
Bellevue (Apr. 11, 1930)	1.15
*Urania, La. (Apr. 11, 1930)	0.95
†East El Dorado (Calion) (Apr. 11, 1930)	0.90

*Posted by Louisiana Oil Refining Corp.

†Posted by Magnolia Petroleum Co.

Apr. 10, 1930, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.67; 25-25.9, $0.72; 26-26.9, $0.77; 27-27.9, $0.82.

Apr. 11, Magnolia met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Lousiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Apr. 11, 1930

Below 28	$0.76	30-30.9	$0.91
28-28.9	0.81	31-31.9	0.96
29-29.9	0.86	32 and above	1.01

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective Apr .10, 1930

Grades A	$1.15	34-34.9	$1.30
Grades B:		35-35.9	1.33
Below 25	1.00	36-36.9	1.36
25-25.9	1.03	37-37.9	1.39
26-26.9	1.06	38-38.9	1.42
27-27.9	1.09	39-39.9	1.44
28-28.9	1.12	40-40.9	1.46
29-29.9	1.15	41-41.9	1.48
30-30.9	1.18	42-42.9	1.50
31-31.9	1.21	43-43.9	1.52
32-32.9	1.24	44 and above	1.54
33-33.9	1.27		

Refugio county (rest of schedule, same as Grades B, which see above).

Below 25	$0.85
25-25.9	1.03

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Humble, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only.

Specifications for Grade "A" crude: Gravity: 25° and below, at 60° F; Viscosity: not less than 100 seconds at 100° F Saybolt.

Sulfur: not over .4%.

Grade "B" includes all Coastal crude which does not meet the test for "A" grades.

$300,000 Gasoline Plant For Alberta Field

TORONTO, Ont., June 5.—The Research Engineering Co. is planning to build a $300,000 gasoline absorption plant in the Turner Valley field, Alberta, to handle the waste gas from the local independent companies, including the natural gas from the McLeod and Okalta wells.

The first intimation of the proposed development was given shareholders of the McLeod Oil Co. Ltd., at the annual meeting. It was stated that an agreement had been reached with the Research Engineering Co., who would take up to 25,000,000 cubic feet of gas per 24 hours.

The McLeod Oil Co. Ltd. will receive from this 16 2/3 per cent of the total gross proceeds of all the gasoline extracted from the waste gas and 50 per cent of the proceeds of the dry gas. The Research process involves the recovery of most of the naphtha which the separators at the wells now fail to condense.

CLEVELAND, June 7. — G. J. Steigerwald, Steigerwald Petroleum Co., has returned to his office at 4700 Prospect avenue, Cleveland, after a month's convalescence following an operation for appendicitis.

Crude Price Changes

PITTSBURGH—On June 5 Pure Oil Co. advanced price of Midland district, Mich. crude 20 cents, making new price $1.55 per barrel.

WHAT HAPPENS

When Your Machinery Starts and Stops

Much of the wear and tear on machinery comes from starting and stopping. For then the fluid film of lubrication is broken and, unless you are using the right lubricant, friction takes a heavy toll.

As long as the fluid film is intact, the quality of the lubricant is not so important. But, when the fluid film breaks, as it does every time you start and stop a machine, the quality of the lubricant supplied to the bearings is of prime importance, if friction is to be kept from doing serious damage.

After exhaustive tests, scientists in our laboratories developed Velvet Motor Oils, which retain the proper viscosity and hold their fluid film at the operating temperatures produced by high speeds. And, in addition, Velvet Motor Oils have that all-important quality—the ability to leave a semi-plastic, adsorbed, protective film on the surface of the metal, after the fluid film is broken. This quality in Velvet Motor Oils prevents excess abrasion during periods of partial lubrication, which is specially important with bearings, such as those of line-shafts, counter-shafts, and machine tools, which are started and stopped frequently and are often subjected to peak loads.

There is a Velvet Motor Oil which is specially prepared to meet every bearing need in your plant, your trucks, or your automobile.

HUMBLE OIL & REFINING CO. VELVET MOTOR OILS HOUSTON, TEXAS

HUMBLE OIL & REFINING COMPANY

WHY A BROWN TANK IS CERTIFIED OIL-TIGHT

First—Over 15 years of practical experience in building.
Second—Guaranteed Thickness Material of proper analysis.
Third—Correct design to handle the load.
Fourth—They are built the right way not the cheapest way.

Through many years of experience in building oil equipment, we know your problems in every detail

Our exceptional manufacturing facilities enable us to give the best kind of service.

A specially constructed tank built according to the purchaser's specifications.
The Standard Oil Company have several hundred of these in service.

BROWN SHEET IRON & STEEL CO. **ST. PAUL, MINN.**

Canadian Associate: Canadian Brown Steel Tank Co., Ltd., Brandon, Manitoba

TEAR OUT THIS COUPON AND MAIL IT TODAY

We are interested in your tanks. Send your catalog and prices.

Make of Truck..... Year..... We operate..... (number) Tank Trucks.

Other equipment on which you may send prices.....

Name..... Address.....

Crude Oil Prices (in Effect June 9, 1930)

(Prices are per barrel at the well)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective Apr. 10, 1930

Grades A.....$1.15 *Grades B.....$1.00

*Grades B include all heavy crudes which do not meet tests for Grades A or for Grades B light crude. Prices for Grades B light crude are the same as Humble's, which see.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Apr. 10, 1930)

‡Salt Creek 29–29.9	$1.00
" " 30–30.9	1.05
" " 31–31.9	1.10
" " 32–32.9	1.15
" " 33–33.9	1.185
" " 34–34.9	1.22
" " 35–35.9	1.255
" " 36–36.9	1.29
" " 37 and above	1.325
Elk Basin	1.55
Grass Creek light	$1.55
Big Muddy	1.38
Lance Creek	1.63
Rock Creek	1.35
Mule Creek	1.20
Rex Lake	1.10
‡Osage	1.63
‡Cat Creek, Mont	1.55
Sunburst, Mont	1.65
‡Hogback, N. Mex	1.40
Artesia, N. Mex	1.05

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

Standard Oil Co. of California

(Effective March 11, 1930)

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach Inglewood* Olinda-Brea Canon*	Athens Rosecrans Dominguez	Elwood Terrace	Torrance Richfield	Whittier La Habra	Montebello	Coyote	Santa Fe Springs (Effective May 17, 1930)	Newhall McKittrick Kern River	Midway-Sunset Elk Hills Buena Vista Hills Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Orcutt (Santa Maria) (Union Oil Co.)	Santa Paula (Ventura) (Union Oil Co.)	Ventura Avenue (Associated Oil Co.)
14–14.9**	$0.70	....	....	$0.70	$0.70	$0.70	$0.70	....	$0.55	$0.55	$0.55	$0.55	....	$0.55	$0.70	$0.70
15–15.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55		.55	.70	.70
16–16.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	$1.65	.55	.70	.70
17–17.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	for	.55	.70	.70
18–18.9	.76	....		.76	.76	.71	.76	....	.55	.62	.62	.62	55°	.65	.75	.76
19–19.9	.82	....	F. o. b. ship	.82	.82	.77	.82	....	.55	.70	.70	.70	gravity	.70	.80	.82
20–20.9	.88	....		.88	.87	.83	.87	....	....	.78	.78	.78	and	.78	.85	.88
21–21.9	.94	....		.94	.93	.90	.93	$0.50	....	.86	.86	.86	over	.90	.90	.91
22–22.9	1.00	....	....	1.00	.98	.97	.98	.50	....	.94	.94	.94	....	.95	.97	.94
23–23.9	1.07	....	....	1.07	....	1.05	1.04	.50	....	1.02	1.02	1.02	....	1.02	1.05	1.00
24–24.9	1.14	1.14	....	1.14	....	1.11	1.10	.50	....	1.09	1.07	1.07	....	1.10	1.08	1.07
25–25.9	1.21	1.19	....	1.21	....	1.17	1.16	.50	....	1.16	1.12	1.12	....	1.18	1.13	1.14
26–26.9	1.28	1.24	....	1.28	....	1.23	1.23	.50	....	1.23	1.17	1.17	....	1.26	1.18	1.21
27–27.9	1.35	1.29	....	1.35	....	1.29	1.30	.50	....	1.30	1.23	1.22	....	....	1.23	1.28
28–28.9	1.42	1.34	....	1.42	....	1.35	1.37	.56	....	1.35	1.27	....	....	....	1.28	1.35
29–29.9	1.46	1.39	....	†1.46	....	1.38	1.41	.62	....	1.41	1.31	....	....	....	1.33	1.39
30–30.9	1.50	1.45	....	†1.50	....	1.41	1.45	.68	....	1.47	1.35	....	....	....	1.39	1.43
31–31.9	1.55	1.51	....	....	....	....	....	.74	....	1.53	1.39	....	....	....	1.45	1.48
32–32.9	1.60	1.57	....	....	....	....	....	.80	....	1.59	1.43	....	....	....	1.51	1.53
33–33.9	....	1.64	....	....	....	....	....	.85	....	1.65	1.47	....	....	....	1.58	1.59
34–34.9	....	1.71	1.32	....	....	....	....	.90	....	††1.71	1.51	....	....	....	....	1.65
35–35.9	....	1.78	1.39	....	....	....	....	.95	....	††1.77	1.55	....	....	....	....	1.71
36–36.9	....	1.84	1.46	....	....	....	....	....	....	....	....	....	....	....	....	....
37–37.9	....	1.90	1.53	....	....	....	....	....	....	....	....	....	....	....	....	....
38–38.9	....	1.96	1.60	....	....	....	....	....	....	....	....	....	....	....	....	....
39–39.9	....	2.02	1.66	....	....	....	....	....	....	....	....	....	....	....	....	....
40–40.9	....	2.08	1.72	....	....	....	....	....	....	....	....	....	....	....	....	....
41–41.9	....	2.14	1.78	....	....	....	....	....	....	....	....	....	....	....	....	....
42–42.9	....	2.20	1.84	....	....	....	....	....	....	....	....	....	....	....	....	....

*Inglewood prices run only to 28.9 gravity; Olinda-Brea Canon to 31.9 gravity.
†Richfield crude only. ††These two grades apply on Lost Hills only.
**Standard does not contract for crude testing below 14 gravity, but pays 45c per barrel when purchased.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	June 9	June 2
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums cwt.	$0.80	$0.80
Sal Soda wks.	$1.00-1.05	$1.00-1.05
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks., lb.	3.50-5.00	3.50-5.00

Compounders' Supplies

Vegetable Oils

	June 9	June 2
Linseed carloads, spot, lb.	14.20	14.20
Tanks, spot	13.40	13.40
Soya Bean, Tank, coast, lb.	9.75	9.75

Oleic Acid

Distilled, tanks, lb.	9.25–9.50	9.25–9.50
Distilled, bbls., lb.	10.125-10.375	10.125-10.375
Saponified, tanks, lb.	9.25	9.25
Saponified, bbls., lb.	10.125–10.625	10.125–10.625

Lard Oils

Prime Winter Strained, lb.	13.50	13.125
Extra Winter Strained, lb.	11.00	11.25
Extra, lb.	10.75	11.00
Extra No. 1, lb.	10.25	10.50
No. 1, lb.	10.00	10.25
No. 2, lb.	9.75	10.00
Tallow oil, lb.	10.00	10.00

Neatsfoot Oil

Pure, bbls., lb.	13.00	13.00
Extra, bbls., lb.	11.00	11.25
No. 1 bbls., lb.	10.50	10.75
Cold Pressed, lb.	17.50	17.50

Fish Oils

Menhaden Oil		
Light Pressed, gal.	59–60	63–65
Light Pressed, tank cars, N. Y., gal.	50	53
White bleached, gal.	65.66	67
Yellow bleached, gal.	58.59	61
Whale, extra winter bleached, gal.	85	85

Naval Stores

Steam, distilled turpentine, N. Y., gal.	42	42
Steam distilled turpentine, Savannah, gal.	41	38
Gum turpentine, N. Y., gal.	48.50	50
Gum turpentine, f.o.b. cars Savannah, gal.	42.50	43
Wood Rosin, N. Y., gal.	$6.21	$6.46
Wood Rosin F, Savn'h, bbl.	$5.45	$5.70
Gum Rosin B, N Y., bbl.	$6.40	$6.50
Gum Rosin B, f.o.b. cars Savannah, bbl.	$5.65	$5.10
Rosin oil, pure, gal.	57	57
Rosin Oil, compounded, gal.	50	50

Pine Tar

Kiln burnt, bbl.	$13.00–14.00	$13.00–14.00
Retort, bbl.	$13.50–14.50	$13.50–14.50

Alcohol

Denatured Formula 5, in bbls., per gal.	49.53	49.53

OIL STOCKS AND FINANCES

National Petroleum News

New Jersey Standard Increases Trade Volume; Profits Lag

NEW YORK, June 6

BUSINESS done by subsidiaries of the Standard Oil Co. (N. J.) this year has increased as compared with last year's business but profits, it was indicated, have not kept pace with volume because of low prices. This information was given stockholders of the New Jersey company by S. B. Hunt, vice-president and treasurer, who presided at the company's annual meeting this week.

Mr. Hunt attributed the low earnings of most oil companies this year to the overproduction of crude oil and gasoline.

Mr. Hunt denied that the company contemplated either declaring a stock dividend or doing additional financing soon. He added that a stock dividend had not been considered by directors and that the company needed no funds through issuance of stock subscription rights. Rumors that W. C. Teagle would resign as president to become chairman of the board, a post now vacant, were also denied by Mr. Hunt.

The New Jersey Company is continuing to develop the hydrogenation process by which it expects to convert liquefied coal, shale oil, coal tars, crude petroleum and its residues of all descriptions into substantially 100 per cent of high-grade products, Mr. Hunt declared. He said the hydrogenation plant being erected at Bayway, N. J., would probably be ready for operation in August. The Humble Oil & Refining Co., a subsidiary, has a hydrogenation plant under construction at Baytown, Texas, which is expected to be ready in about a year. A third plant is being built at the Baton Rouge refinery of the Standard Oil Co. of Louisiana, a wholly owned subsidiary, and is expected to be ready for operation toward the close of next year.

Mr. Hunt indicated the hydrogenation process was one of the most important developments in the refining branch of the industry in several years. Numerous important oil companies have signified their intention of applying for use of the process, Mr. Hunt said. At first, the New Jersey company intended to keep the process entirely for itself, but subsequently decided to license the process to other refiners on a royalty basis, he added.

Rights to the hydrogenation process for the world outside of Germany are held by the Standard-I. G. Co., in which the Standard of New Jersey holds a majority interest and the I. G. Farbenindustrie the remainder. In April of this year the Hydro Patents Company was formed, with exclusive rights to license the process in the United States. The company will pay fixed royalties to the Standard-I. G. Company on each license granted in addition to certain running royalties. The hydrogenation process was developed jointly by the Standard Oil Company of New Jersey and the I. G. Farbenindustrie of Germany.

The Ethyl Gasoline Corp., in which the New Jersey company and the General Motors Corp. each hold a 50 per cent interest, is becoming more important as a source of revenue, owing to the steadily increasing sales of ethyl gasoline each year, Mr. Hunt said. The gasoline is unusually profitable, and the volume is increasing steadily, amounting to 20 per cent of the company's total retail sales of gasoline in New Jersey, he declared.

The retiring directors were re-elected.

Solar Is Cutting Runs More Than Seventh

CLEVELAND, June 7.—Solar Refining Co. has exceeded the recommendation of the Federal Oil Conservation Board that refinery runs be curtailed one seventh, F. T. Cuthbert, president, has written stockholders in regard to Solar's passing its dividend. Mr. Cuthbert wrote:

"After carefully considering the outlook and prospects for the company's business for the balance of this year, your entire board of directors on this date by unanimous action decided to suspend the payment of dividends at this time, believing that the best interests of the company and its stockholders would be served by the conservation of resources.

"The management of your company is cooperating to the fullest extent in the efforts that are being made to stabilize the industry, even to the extent of going somewhat beyond the proportionate reduction of 14.29 per cent in operations suggested by the Federal Oil Conservation Board, and I am hopeful that before the end of the year the balance between production and requirements, of both crude petroleum and the finished products, will have been adjusted so that all plants in every branch of the industry, which are equipped to operate at a minimum cost, as your plant is, will be assured a normal margin of earnings.

"As you have no doubt noted from examination of the annual reports of this company, during the last three years dividends have been paid from surplus, interest and dividends received from investments, and from appreciation of investments which have been disposed of. While these sources of dividends have not been exhausted, your management is of the opinion that the working capital of the company should not be further unavoidably impaired until such time as the efforts to stabilize the oil industry have accomplished some result, or until some ways or means now under consideration by your management are further developed, tending to fortify and maintain this company's position in the industry and enabling it again to operate profitably."

Signal to Offer Debentures

CLEVELAND, June 7.—Signal Oil & Gas Co. of California shortly will make a public offering of $2,500,000 convertible debentures, according to New York advices. Proceeds are to be used for acquisition and development of properties.

HOUSTON—Texas collected $20,819,388 in gasoline taxes from July 26, 1929 to May 1, 1930, according to the Texas Petroleum Marketers Association.

Of this amount, the state highway department received $14,656,451; the school fund, $4,885,483; protested claims and money subject to refund, $1,277,453.

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Rattle-Proof
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One For Every Car

If he has to go to the next station for a gas tank cap — you lose a sale of gasoline —

NO MAN is going to let you fill his tank with gas if his gas tank cap is gone—unless you can replace it. If you can't, he is going to drive on to a filling station that has a cap.

For a very small investment, you can change all this. With an attractive display board containing an assortment of Monmouth Gas Tank Caps you are ready to replace a lost cap on any car that pulls into the place. You lose no gas sales and make a handsome profit on the cap as well. And there's no sales effort required.

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Cleveland, Ohio

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Give us more information on Monmouth Gas Tank Caps.

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Street _____

City _____

Transactions in Oil Shares on New York Stock Exchange

1929 High	1929 Low	1930 High	1930 Low	Listed Shares	Par Value	Company	Div. Rate	Last Paid	Transactions Week Ended June 7 Sales	First	High	Low	Last	Change
42⅝	17½	42¼	20½	922,075	N.P.	Amerada Corp.	50cQ	Apr. 30, 30	76,000	28½	31½	27¼	27½	0
64¾	12½	37	20½	209,180	N.P.	American Republics Corp.	....	.....	1,800	26	27	24	24	— 2½
47¼	34½	51	32½	2,240,000	$25	Associated Oil.	50cQ	Mar. 31, 30	90	51	*51	51	51	+ 1
77⅞	30	51⅜	36¼	2,683,868	25	Atlantic Refining Co.	‡25cQ	Mar. 15, 30	16,400	44	44	40½	40½	— 1⅝
49⅛	20	34	20½	2,257,108	25	Barnsdall Corp. A.	50cQ	May 7, 30	6,900	27	27½	25⅜	25⅛	— 1⅝
34½	25	29⅝	28	2,060,966	25	California Petroleum Corp.	....	Jan. 1, 29	.....	....	....	....	....	.....
32⅞	12½	20⅝	13	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	1,000	16⅜	17⅛	16	16	0
37⅝	18	30½	19½	4,610,258	N.P.	Continental Oil (Delaware)	....	.....	27,600	27¾	27⅞	25	25¼	— 2¼
94⅝	42¼	71⅛	49⅛	410,857	$100	General Asphalt Co.	$1Q	Mar. 15, 30	8,200	60	60½	56	56	— 2⅝
109	26	116⅞	52¼	250,000	100	Houston Oil.	....	.....	134,500	102⅛	110⅞	100	100	— 2
39⅜	17¾	32	20¼	1,379,295	N.P.	Independent Oil & Gas.	50cQ	Apr. 30, 30	11,800	26	26	23⅝	24	— 1¾
53	13⅜	28⅜	16	699,066	10	Indian Refining.	....	Dec. 15, 20	32,200	18½	18⅝	16	16	— 2¼
51¼	11½	27¾	15½	568,816	10	do certificates.	....	.....	17,000	18	18	15½	15⅞	— 1⅞
38⅜	16½	26½	21¼	3,994,150	N.P.	Lago Oil & Transport.	....	Aug. 2, 27	200	24½	24½	24½	24½	— ⅜
18	7	12	8	1,187,701	N.P.	Louisiana Oil Refining.	....	.....	4,700	9⅞	10	9	9	— 1
100¼	80	89½	84	40,000	$100	do pfd.	$1.62½Q	May 15, 30	.....	....	....	....	....	.....
18½	5⅞	10⅜	5⅛	330,000	N.P.	Maracaibo Oil Exploration.	....	.....	.....	....	....	....	....	.....
295	176	180	176	459,428	$100	Mexican Petroleum.	$3Q	Apr. 21, 30	10	180	*180	180	180	+ 1
105	102	....	....	120,000	100	do pfd.	$2Q	Apr. 21, 30	.....	....	....	....	....	.....
69⅛	9¼	37	16⅛	1,244,383	N.P.	Mexican Seaboard Oil.	....	Oct. 15, 24	55,800	30⅜	30¾	25½	26	— 4⅛
39⅞	22⅛	33	23½	1,899,138	N.P.	Mid-Continent Petroleum.	50cQ	May 15, 30	7,600	28½	28⅝	27¼	27¼	— 1¼
3⅝	¾	2½	⅞	908,171	N.P.	Middle States Oil ctfs.	....	.....	2,500	1¼	1½	1⅛	1¼	0
69	40¼	64¼	51⅝	1,000,000	$50	Pan American Petrol. & Trans.	....	Oct. 20, 27	1,900	60	60	59½	59⅝	— ⅜
69¼	40½	67½	50½	2,422,221	50	do B.	....	Oct. 20, 27	6,400	63¼	63⅜	59½	59½	— 3¾
15¼	3	12¾	4⅛	199,370	N.P.	Panhandle Prod. & Refg.	....	.....	4,600	11	11	8⅝	8⅝	— 2¼
76	47½	80	47½	25,666	$100	do pfd.	....	July 2, 23	200	72⅛	74½	72⅛	74½	— 5½
....	....	27¼	21⅞	.....	....	Petroleum Corp. of America.	....	.....	113,900	26¼	*27¼	†24⅞	25⅜	— ⅝
47	24¼	44⅜	29⅛	2,670,089	N.P.	Phillips Petroleum Co.	50cQ	Apr. 1, 30	48,000	38¼	38⅜	36¼	36¼	— 1⅜
3⅜	1	2½	1	1,184,917	$25	Pierce Oil Corp.	....	.....	6,400	1⅜	1¾	1½	1½	— ¼
51½	20	52	20½	150,000	100	do pfd.	....	Feb. 1, 22	1,300	40	42½	35⅜	35⅜	— 2⅞
5⅞	½	7⅛	2¼	2,500,000	N.P.	Pierce Petroleum Corp.	....	.....	34,500	6	6½	6	6⅛	+ ⅛
65⅝	40½	54	45	2,435,670	$25	Prairie Oil & Gas Co.	50cQ	Mar. 31, 30	1,400	46⅛	47	45	45⅛	— 1⅜
65	45	60	48¾	4,050,000	25	Prairie Pipe Line Co.	‡75cQ	Mar. 31, 30	10,000	51¾	51¾	†48¾	48¾	— 2¼
25⅞	4	11⅞	6½	749,017	50	Producers & Refiners Corp.	....	Sept. 15, 30	2,500	10⅜	10¾	9	9	— 1½
46¾	25½	38	35	56,907	50	do pfd.	....	May 4, 25	10	35	35	35	35	— 3
30¾	20	27¼	21⅜	3,038,370	25	Pure Oil Co.	37½cQ	June 2, 30	14,100	22¾	23	22⅝	22¾	— ⅛
116	108	114¼	110½	130,000	100	do 8% pfd.	$2Q	Apr. 1, 30	134	114	114	113	113⅞	+ ⅝
49⅝	22⅝	28¼	20⅜	2,101,550	25	Richfield Oil (California).	50cQ	May 15, 30	13,500	22¼	23	†20⅜	20⅞	— 1¾
42½	15	25⅝	16½	1,235,270	N.P.	Rio Grande Oil Co.	50cQ	Apr. 25, 30	6,300	21⅞	21⅞	20¼	20⅜	— 1⅝
64	43⅛	56½	49¼	951,310	$13.40	Royal Dutch (N. Y. shares).	$1.3415	Feb. 15, 30	8,600	52⅞	53	51⅞	51⅞	— 1½
55⅜	43⅜	48⅜	42¾	77,492	£2	Shell Transp. & Trading.	97c	Jan. 28, 30	10,000	45	45	45	45	— ¾
31¾	19	25½	20⅛	13,069,076	N.P.	Shell Union Oil Corp.	35cQ	Mar. 31, 30	22,200	21	21½	20	20	— ⅝
....	....	106¼	98¾	400,000	100	do pfd.	$1.37½Q	Apr. 1, 30	900	100½	100½	99¾	99¾	— 1¼
40⅛	15	37	22⅞	869,255	10	Simms Petroleum Co.	40cQ	Mar. 15, 30	3,200	27⅛	28⅜	26	26	— 2⅝
45	21	32	21⅜	5,455,665	N.P.	Sinclair Consolidated Oil Corp.	50cQ	Apr. 15, 30	127,400	28	29½	27⅛	27⅛	— ⅝
111	103	112¼	109	154,685	100	do pfd.	$2Q	May 15, 30	1,500	109⅞	110	109	110	+ ½
46½	42	42	28⅞	1,097,650	$25	Skelly Oil Co.	50cQ	Mar. 15, 30	7,500	36⅜	36⅜	34¼	34¼	— 1¾
....	....	99¾	95	120,000	100	do pfd.	....	.....	2,500	95¼	*99¾	†95	96	— 3½
....	....	104¼	98	750,000	100	S. O. Export Corp. pfd.	....	.....	3,500	103	*104¼	103	103½	+ ½
81¾	51½	75	55½	13,016,434	N.P.	S. O. California.	62½cQ	Mar. 15, 30	22,000	70½	71¼	66¾	67⅛	— 3⅜
....	....	49	37¼	320,000	$25	S. O. Kansas.	50cQ	Mar. 15, 30	7,500	40⅞	42⅛	39	39	— 1⅞
83	48	84⅞	58	25,443,643	25	S. O. New Jersey.	‡25cQ	Mar. 15, 30	259,400	80½	80⅝	74½	75	— 5¼
48⅛	31¾	40⅜	31¼	17,809,530	25	S. O. New York.	40cQ	Mar. 15, 30	39,700	36⅝	37¼	35	35	— 2
86⅜	55	70	53	1,416,911	N.P.	Sun Oil Co.	25cQ	Mar. 15, 30	700	66	67⅛	64½	64½	+ ¼
105½	100	105⅛	102½	100,000	$100	do pfd.	$1.50Q	June 2, 30	330	104¾	104¾	104½	104½	— ¼
24	5¼	9⅜	5¼	1,026,979	N.P.	Superior Oil Corp.	....	.....	8,100	7½	7⅝	6¼	6¼	— 1¼
71⅞	50	60½	50⅝	9,850,724	$25	The Texas Corp.	75cQ	Apr. 1, 30	21,500	58⅛	58½	56¼	56¼	— 1⅜
23⅞	9½	14½	8⅞	929,947	10	Texas Pacific Coal & Oil.	s2½%	Dec. 31, 29	5,900	10¾	10¾	10	10	— ⅝
23½	10	17¾	10¾	5,881,980	N.P.	Tide Water Associated Oil.	30cS.A.	Feb. 15, 30	35,600	17¾	17¾	16¼	16½	— 1
90⅞	74⅛	89¾	78	732,550	$100	do pfd.	$1.50Q	Mar. 31, 30	1,600	88⅝	88⅝	88	88	— ½
40	14	31	19½	2,191,820	N.P.	Tide Water Oil Co.	20cQ	Mar. 31, 30	.....	....	....	....	....	.....
97½	85⅛	94⅞	86⅛	199,443	$100	do pfd.	$1.25Q	May 15, 30	500	93½	93½	92½	92½	— 1⅛
....	....	24	16¼	3,339,150	N.P.	Transcontinental Oil.	30c	May 1, 30	44,700	20¼	21	19⅛	19¼	— ⅜
57	42⅜	50	40⅛	2,201,008	$25	Union Oil Co. (California).	‡50cQ	May 10, 30	2,600	45⅜	45¾	43¾	44	— 1¼
....	....	38½	32	1,254,048	N.P.	Union Tank Car Co.	40cQ	June 2, 30	400	33	33	32¼	32¼	— ¾
42⅞	15	27	16⅝	777,603	N.P.	Warner Quinlan Co.	25cQ	Apr. 3, 30	24,600	18¼	18⅜	17½	17½	— ¾
38	25	29½	26	490,000	N.P.	White Eagle Oil & Refg.	50cC	Apr. 20, 30	.....	....	....	....	....	.....
29¾	12⅞	21	11½	428,967	N.P.	Wilcox Oil & Gas Co.	....	May 10, 28	1,600	18	18½	18	18½	— ½

*New high †New low ‡Also extra s-Stock Total sales 1,333,474

Pittsburgh Stock Exchange

Transactions week ended June 6, 1930

	Sales	High	Low	Last	Change
Ark. Nat. Gas....	265	12¼	11	11¼	— ¾
do pfd.....	700	8	8	8	0
Devonian Oil....	155	10½	10	10	—1½
Lone Star Gas....	10,335	50⅞	48⅛	49½	+ ½
do pfd.....	15	107	107	107	—1
Plymouth Oil....	2,330	25½	22½	25	+3
Shamrock Oil & Gas	2,775	24½	23	23½	— ½
Lone Star rights..	31,191	4½	4⅛	4⅜	0
Phoenix Oil.....	19,480	.70	.65	.70	+.05
Leonard Oil.....	50	3	2½	3	+ ⅜

Pittsburgh Curb Market

Transactions week ended June 6, 1930

	Sales	High	Low	Last	Change
Arkansas Gas A..	340	11½	11	11	....

MONTGOMERY, Mich.—B. A. Dobson has purchased half an acre of land and 200 feet of railroad siding here on which he will install two 10,000-gallon storage tanks. Mr. Dobson expects to do a general bulk plant business. He will operate a tank wagon for deliveries.

COLUMBUS O.—A one-day conference will be held by the Ohio Petroleum Marketers Association at the Deshler-Wallick Hotel, Columbus, Sept. 17, according to W. A. Milne, executive secretary.

Sinclair Employes Buy 141,825 Shares

NEW YORK, June 7.—About 35 per cent of eligible employes have taken advantages of the stock purchase plan of the Sinclair Consolidated Oil Corp., it has been announced. The first year of the plan ends June 30. The 5006 employes who are participating, have purchased 141,825 shares.

Under the Sinclair plan the price of the stock is the average of open market prices in the three months preceding June 1 less 10 per cent. The company contributes 20 per cent of the cost of the stock. Employes who fulfill all provisions of the plan also get extras. Executives and directors are not eligible to the plan.

Indian Notes at 99¼

CLEVELAND, June 7.—The offering of $3,500,000 Indian Refining Co. 5½ per cent 2½-year notes was at 99¼ to yield 5.80 per cent.

Financial Notes

Amerada Corp.—Leroy W. Baldwin, president of Empire Trust Co., New York, and H. W. Masters, representative of the English Cowdray interests, have been elected directors. The board was increased to admit them. Other directors and officers have been re-elected.

Mid-Continent Petroleum Corp.—J. J. Theisen, St. Joseph, Mich., has been elected an additional director. Other directors were re-elected at the

annual meeting. Stockholders approved an employe stock purchase plan under which company may sell not more than 50,000 shares to trustees of the plan.

Middle States Petroleum Co.—Leroy W. Baldwin, New York, banker, has been elected a trustee to fill vacancy caused by death of James E. Sague.

Pure Oil Co.—All directors were re-elected at annual meeting.

Standard Reveals Carter And Louisiana Profits

Co. (N. J.) in listing additional preferred stock of the Standard Oil Export Corp. revealed the earnings of the Carter Oil Co. and Standard Oil Co. of Louisiana in 1929. Carter netted $8,681,323 after all charges and reserves and Standard of Louisiana $5,424,940.

The balance sheet of the Carter Oil Co. as of Dec. 31, 1929, shows total assets of $39,481,884, of which current assets total $16,484,257. A feature of the balance sheet was that total fixed capital assets amounted to only $22,917,179 after deducting depreciation, depletion and amortization reserves of $97,108,031.

The company's capitalization consists of 250,000 shares of $100 par value stock, all of which is owned by the Standard Oil Co. of New Jersey. Gross income, excluding inter-departmental transactions, amounted to $65,801,181.

The Standard Oil Co. of Louisiana reported a gross operating income of $140,157,257, including inter-company transactions, but excluding all inter-departmental transactions. The balance sheet shows total assets of $138,114,334, of which current assets amounted to $61,234,504. Fixed capital assets were $73,175,245, after deducting $64,814,678 for depreciation, depletion and amortization. Its capitalization consists of 750,000 shares of $100 par value all of which is owned by the Standard Oil Co. of New Jersey.

The Standard Oil Export Corp. was organized by the Standard Oil Co. of New Jersey; the Carter Oil Co., the Standard Oil Co. of Louisiana, and the Humble Oil & Refining Co. All of these companies are wholly owned subsidiaries of the Standard Oil Co. of New Jersey, except the Humble Oil & Refining Co., which is about 70 per cent owned.

Last fall the Standard Export Corp. made an offer to acquire all of the outstanding stock of the Anglo-American Oil Co. on the basis of one share of its 5 per cent preferred stock for each 5 5-9 shares of the Anglo-American company. Approximately 4,102,000 shares out of the 4,192,635 shares of Anglo-American outstanding have already been exchanged in accordance with this offer.

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EXCEPTIONAL
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(Now employed by major company)

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Assistant to executive officer in charge of sales.

Sales promotion manager.

Division manager.

Special representative.

This man has been through the mill in the marketing division of the petroleum industry. Old enough to be completely seasoned, young enough to have abundant energy and creative ideas but can also listen.

Familiar with conditions and markets in the East and Middle Western states. Married, two children, a Christian, clean cut and in perfect health.

We have proof of his individual success as a producer and a leader of salesmen from former employers, present employer, employees and customers.

An expression of your requirements will bring complete details.

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Situations Open

DESIGNING ENGINEER

Technical Graduate preferably under 40, with Refinery Equipment Design and Operating Experience. Some traveling necessary. A permanent opportunity is afforded to one possessing initiative, experience and good personality. Address with full information.

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MARKETING EXECUTIVE WANTED

Major independent oil company operating in middle west, and rapidly expanding in retail marketing field, seeks a man whose experience and proven executive ability qualify him to take immediate charge of division office of marketing department. He must be a man with a past record of successful management of station operation and sales; a man who aspires to ally himself with an aggressive company, at an income commensurate with the responsibilities of the position. Submit written application, which, if requested because of present employment, will be kept strictly confidential.

Address "Executive"
Care National Petroleum News, 904 World Bldg., Tulsa, Okla.

Situations Open

AN EXCEPTIONAL
MAN
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An oil company with distribution in New England has an unusual opening for a man of exceptional ability.

He must be above all things energetic, physically and mentally. He must have had experience in the oil industry. He must be a Christian, well educated, clean cut and used to making a good living. In short he must be a potential district sales manager willing to prove his worth.

Apply by letter to Box 546 stating full qualifications. Our personnel has been advised of this advertisement.

Business Opportunities

PENNSYLVANIA LUBES
Old, Reliable, Well-known
firm in Pennsylvania invite correspondence with California or far-western buyers of Pennsylvania oils, relative to establishing group-buying with resultant worth-while savings.

Address Box 541.

For Sale

FOR CHARTER: Tank Barge—steel—clean—29,000 bbls. on 20 ft. Tank Steamer—clean—20,000 bbls. on 16 ft. Motor Tanker—clean—150,000 gals. on 11 ft. (All available Great Lakes or Coast.)
FOR SALE: Tank Barge—iron—molasses or oil—1,000 tons—$8,000.
RUTLAND'S MARITIME EXCHANGE
80 Maiden Lane, New York.

GASOLINE PUMPS FOR SALE

10 Completely reconditioned and repainted Fry No. 17, 5-gallon Visible Pumps, newly painted, $50 each.
10 not reconditioned pumps which are as received back from dealer, $35 each, prices f.o.b. shipping point, Erie, Pa.
Address P. O. Box No. 611, Erie, Pa.

Professional

L. G. Huntley J. R. Wylie, Jr.
Shirley L. Mason

HUNTLEY & HUNTLEY
PETROLEUM GEOLOGISTS AND ENGINEERS
Frick Building PITTSBURGH, PA.

Standard Oil Stocks on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Outstanding Shares	Par Value	Companies	Div. Rate	Last Paid	Transactions Sales	Week Ended June 7 First	High	Low	Last	Change
18¾	13½	18½	12¼	.....	£1	Anglo-Amer. Oil voting stk. ctfs..	36c	June 5, 29	.....	.....	.....	.....	.....	.....
17⅜	11	19	12	.....	£1	do non-voting stk. ctfs.....	36c	June 5, 29	.....	.....	.....	.....	.....	.....
2½	⅜	1	½	500,000	N.P.	Atlantic Lobos Oil.....	....	.....	200	¾	¾	¾	¾	0
4⅜	1	1½	1¼	200,000	$50	do pfd.....	....	.....	.....	.....	.....	.....	.....	.....
46½	25	25	20	40,000	25	Borne Scrymser Co.....	$1S.A.	Apr. 15, 30	.....	.....	.....	.....	.....	.....
74¼	55	69	57	200,000	50	Buckeye Pipe Line Co.....	$1Q	Mar. 15, 30	.....	.....	.....	.....	.....	.....
210	130	184⅞	155	120,000	25	Chesebrough Mfg. Co.....	‡$1Q	Mar. 31, 30	.....	.....	.....	.....	.....	.....
11¾	5⅝	7⅝	5⅜	.....	N.P.	Creole Petroleum Co.....	....	.....	1,600	7	*7⅝	6¾	6⅞	— ⅛
75¾	40	65¾	40½	30,000	$ 50	Cumberland Pipe Line Co.....	$1Q	Mar. 15, 30	.....	.....	.....	.....	.....	.....
70½	42	54¾	43	50,000	100	Eureka Pipe Line Co.....	$1Q	May 1, 30	.....	.....	.....	.....	.....	.....
....	....	6¾	2½	280,000	N.P.	Galena Oil Corp. w.i.....	....	.....	1,000	6¾	6¾	6¼	6¼	— ¼
....	....	37¼	32	.....	N.P.	General Petroleum Corp. w.i.....	....	.....	100	36	36	35½	35½	+ 1½
128	74⅛	119	78	2,974,645	$25	Humble Oil & Refg. Co.....	50cQ	Apr. 1, 30	4,800	104¾	105¼	99⅞	99⅞	— 6⅛
41	22	30	22⅛	26,490,741	N.P.	Imperial Oil, Ltd.....	12½cQ	June 2, 30	9,900	24½	25⅜	24	24	— 1⅛
42⅛	26	41	37	300,000	$10	Indiana Pipe Line Co.....	50cQ	May 15, 30	400	37½	37½	37	37	— ½
29⅜	15	24	17¾	14,247,880	N.P.	International Petroleum Co.....	25c	Mar. 15, 30	9,400	21½	21¾	20½	20½	— ¼
25⅞	10½	22⅜	18⅝	509,000	$12½	National Transit Co.....	25cQ	Mar. 15, 30	800	18⅝	19⅛	18⅝	19	+ ½
17⅜	10	21	14	100,000	10	New York Transit Co.....	‡40cQ	Apr. 15, 30	300	20	20¾	20	20¾	0
63	41	54	37	40,000	50	Northern Pipe Line Co.....	$2S.A.	Jan. 2, 30	50	41	41	41	41	0
79¾	64⅛	74⅞	66¼	2,400,000	25	Ohio Oil Co.....	‡50cQ	Mar. 15, 30	13,100	72⅝	76¾	72⅝	75¾	+ 2¾
105½	103¾	108	103	600,000	100	do pfd.....	$1.50Q	June 14, 30	400	105	105	105	105	0
44½	18⅝	32	20	400,000	25	Penn Mex. Fuel Co.....	$1	May 20, 30	500	23	25	23	25	+ 2½
50	29	33	21	160,000	25	Solar Refining Co.....	$1.25S.A.	Dec. 20, 29	100	18	18	18	18	— 3
23½	13	20⅛	13	100,000	10	Southern Pipe Line Co.....	$5	June 2, 30	.....	.....	.....	.....	.....	.....
60¾	35⅛	45⅞	37½	1,200,000	25	South Penn Oil Co.....	‡50cQ	Mar. 31, 30	800	42½	42½	42	42	0
70	45	64	50	35,000	50	Southwest Pa. Pipe Lines.....	$1Q	Apr. 1, 30	.....	.....	.....	.....	.....	.....
63	45	59⅞	49⅞	16,850,587	25	S. O. Indiana.....	62½cQ	Mar. 15, 30	22,500	54	54⅛	52⅛	52½	— 1⅜
46⅞	29	40½	33¼	2,577,124	10	S. O. Kentucky.....	40cQ	Mar. 31, 30	5,600	36¼	37	34⅝	36	— ⅛
50¾	40	48⅞	44⅛	188,159	25	S. O. Nebraska.....	‡62½cQ	Mar. 20, 30	100	48⅜	48⅜	48⅜	48⅜	0
129	60	108½	81	560,000	25	S. O. Ohio.....	62½cQ	Apr. 1, 30	550	91¼	91¼	87⅜	87⅜	— 5½
124½	113½	122	117⅝	70,000	100	do pfd.....	$1.75Q	June 2, 30	60	118¾	118¾	118	118	0
18	5⅛	10	8	34,158	25	Swan Finch Oil Corp.....	....	Jan. 15, 29	.....	.....	.....	.....	.....	.....
133¾	75⅛	97⅞	85⅜	5,139,887	25	Vacuum Oil Co.....	$1Q	Mar. 20, 30	15,200	94¼	94¾	88½	88½	— 6⅜

*New high †New low ‡Also extra

Independent Oils on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Par Value	Companies	Transactions Sales	Week Ended June 7 First	High	Low	Last	Change
.72	⅛	⅜	⅛	$1	Amer. Contr. Oilfields	9,200	3/16	3/16	⅛	⅛	— 1/16
8⅝	1⅛	4½	1½	5	Amer. Maracaibo....	10,800	3⅝	3¾	3⅛	3⅛	— ⅜
4¾	1	1⅜	1¼	10	Argo Oil.....	.....	.....	.....	.....	.....	.....
26	3¾	16¾	8¾	N.P.	Arkansas Nat. Gas...	2,600	12	12	10¾	11	— ⅜
24¾	6½	16⅝	8⅝	N.P.	do Class A.....	12,700	11½	11¾	10½	10¾	— ¾
9	4	8⅛	7⅝	10	do pfd.....	800	8⅛	8⅛	8	8	0
70	50	28½	20¼	N.P.	British American Oil..	.....	.....	.....	.....	.....	.....
4⅞	⅞	2¾	¾	¼	Carib Syndicate.....	1,000	1⅞	1⅞	1¾	1⅞	0
68½	20	44¼	26½	N.P.	Cities Service.....	221,700	34	34⅛	30¾	31⅛	— 2⅞
99¼	84	93⅞	52	100	do pfd.....	1,900	92¾	93⅛	†52	82⅝	0
9¼	8	9	7⅝	10	do pref. B.....	200	8⅜	8⅞	†7⅝	7⅝	— ⅜
96	81	85	82	100	do pref. BB.....	100	85	85	85	85	+ ½
1½	¼	⅜	¼	1	Colombia Syndicate..	1,500	⅜	½	⅜	½	+ ⅛
15	3⅞	8¼	4½	N.P.	Colon Oil Corp.....	1,800	4⅝	5⅛	†4½	5⅛	+ ⅛
....	....	21	10¾	N.P.	Columbia Oil & Gas...	18,800	12⅝	13	†10¾	12⅛	— ⅞
11⅜	2½	5⅞	3⅞	10	Consolidated Royalty	200	4¼	4¼	3⅞	3⅞	— ⅛
135	42	74¾	45	N.P.	Cosden Oil Co.....	18,800	56⅜	65⅝	55⅜	55⅜	— ⅞
87	55	70	61	100	do pfd.....	.....	.....	.....	.....	.....	.....
2½	¼	1	¼	N.P.	Crown Central Pet...	1,400	½	½	½	½	— ⅛
11¾	4	....	....	N.P.	Crystal Oil.....	.....	.....	.....	.....	.....	.....
51⅜	51⅛	....	....	100	do pfd.....	.....	.....	.....	.....	.....	.....
26	6½	12⅞	7¼	N.P.	Darby Petroleum....	1,400	9¾	9¾	8¾	8¾	— 1⅛
....	....	21¾	21½	N.P.	do new.....	.....	.....	.....	.....	.....	.....
11	2	11	4½	N.P.	Derby Oil & Refg.....	12,100	8	8	8	8	+ ¼
44	17	60	30	N.P.	do pfd.....	.....	.....	.....	.....	.....	.....
....	....	12	12	10	Devonian Oil.....	.....	.....	.....	.....	.....	.....
209	115	166⅞	131¼	$25	Gulf Oil Corp.....	3,800	150½	150½	144½	144½	— 6¼
7½	1⅜	4	2¼	N.P.	Homaokla Oil.....	.....	.....	.....	.....	.....	.....
....	....	47½	33¼	N.P.	Indian Territory A..	6,900	35⅝	35⅝	†33⅛	33¼	— 2¼
....	....	53½	33⅛	N.P.	do B.....	5,800	36	36	†33⅛	33¼	— 2⅜
2⅞	⅜	1⅜	¾	10	Intercontinental Pet..	18,800	1⅜	1⅜	1	1¼	— ⅛
3⅝	1¼	3	1⅞	N.P.	Kirby Petroleum....	600	1⅞	1⅞	1⅞	1⅞	— ⅛
6¼	1	4¾	1⅛	N.P.	Leonard Oil & Dev...	.....	.....	.....	.....	.....	.....
38⅞	18	29	18⅝	N.P.	Lion Oil Refg.....	900	26¾	26¾	24	24	— 3
67⅞	28	55⅞	34⅛	N.P.	Lone Star Gas.....	8,800	49	51	48⅜	49	— 3½
....	....	31	28½	$25	MacMillan Petrol....	.....	.....	.....	.....	.....	.....
2⅞	¼	½	¼	1	Magdalena Synd.....	1,800	3/16	3/16	¼	¼	0
38½	14	16	12	N.P.	Margay Oil.....	.....	.....	.....	.....	.....	.....
6⅜	2¼	7½	2	N.P.	Mexico Ohio Oil.....	.....	.....	.....	.....	.....	.....
....	....	11⅞	7¼	N.P.	Middle States A.v.t.c.	4,800	8¾	8¾	†7¼	7¼	— 1½
....	....	6	3⅛	N.P.	do Class B. v.t.c.	6,900	4⅛	4⅜	†3⅛	3⅛	— ⅞
42	8	35¾	18⅞	5	Missouri-Kansas P.L.	47,400	35⅝	36½	35⅝	36⅛	+ ½
1¼	¼	¾	⅜	1	Mountain & Gulf Oil..	1,300	½	½	½	½	0
22⅞	7	12⅛	8	10	Mountain Producers..	4,800	10¼	10¾	10	10	— ¼
43⅞	24	41⅜	25⅛	N.P.	Nat. Fuel Gas.....	4,900	39	39¼	37½	37½	— 1½
5	2¼	3½	2⅜	$5	New Bradford Oil....	1,300	2½	2⅝	2½	2½	+ ⅛
4¾	3⅛	3⅛	2⅜	10	New England Fuel...	200	2⅞	2⅞	2⅞	2⅞	0
24½	11⅜	16⅞	10⅛	25	N. Y. Pet. Royalty..	200	11¼	12¼	11¼	12¼	+ ⅛
18½	6⅛	11¼	6⅞	N.P.	North Central Texas	.....	.....	.....	.....	.....	.....
19¼	8⅛	11⅝	8⅛	N.P.	Oilstocks Ltd. A.....	500	10	10	9¾	9¾	+ ¼
18¼	8½	11	8½	N.P.	do B.....	.....	.....	.....	.....	.....	.....
26⅜	12⅛	19½	12½	N.P.	Pacific Western Oil...	400	16¾	16¾	16	16	— ¾
3½	½	2½	1	N.P.	Pandem Oil.....	15,600	1¼	1⅜	1	1¼	0
10½	2¼	4⅜	1⅞	N.P.	Pantepec Oil.....	2,000	2¾	2¾	2¾	2¾	0
25½	13⅛	13⅛	13⅛	$25	Paragon Refg. B. ctfs.	.....	.....	.....	.....	.....	.....
28	17	29	19⅜	N.P.	Petroleum Corp.....	.....	.....	.....	.....	.....	.....
....	....	5⅞	4¼	....	do warrants.....	5,800	5½	5½	5⅛	5⅛	— ⅜
37	22	27½	20⅞	N.P.	Plymouth Oil	4,100	22½	25½	22½	24½	— 2¼
16	9	10½	9	$5	Red Bank Oil.....	700	9⅞	10	9½	10	0
8½	1⅜	5⅜	2⅛	N.P.	Reiter-Foster Oil.....	2,400	3¼	3½	3	3	— ¼
25¼	19	23½	20⅛	25	Richfield Oil pfd.....	200	20½	20½	†20⅛	20⅛	— ⅜
29	13	25	14	N.P.	Root Refining pr. pfd.	100	21	21	21	21	— 1
11	3	8⅝	3⅝	N.P.	Ryan Consolidated...	200	6⅛	6⅛	6⅛	6⅛	— ⅜
5⅞	1⅞	2½	1½	10	Salt Creek Consol.....	100	1¾	1¾	1¾	1¾	+ ⅛
25⅞	9	15¼	10	10	Salt Creek Producers	600	12¼	12⅜	12	12	— ¼
33⅛	10	....	....	25	Shreveport El Dorado	.....	.....	.....	.....	.....	.....
....	....	39⅛	39	25	Signal Oil & Gas A..	.....	.....	.....	.....	.....	.....
24	9	17	9	N.P.	Southland Royalty..	3,200	14⅜	14⅜	13½	13½	— ⅞
12	4	10	5½	5	Sunray Oil.....	4,300	7½	7½	6¾	6¾	— ¾
23	7⅛	15¼	8⅜	N.P.	Texon Oil & Land...	3,100	14½	*15¼	13¾	16	+ 1
81⅜	8⅞	16	8	10	Venezuela Mexico....	800	9	9	8	8	— 2⅝
6½	1⅛	4½	2¼	5	Venezuela Petroleum.	1,500	2⅞	3	2¾	2⅞	0
9⅛	2	5	2	1	Woodley Petroleum..	1,300	4¾	*5	4¾	4⅞	0
5⅜	¼	2½	½	N.P.	Y Oil & Gas.....	1,000	1¼	1⅞	1⅞	1⅞	+ ⅜

*New High †New Low

New York Bonds

Week Ending June 6

	High	Low	Last	Change
Assoc. Oil gold 6s.....	103	103	103	0
Atlantic Refg. deb. 5s....	102	101¾	102	+ ⅛
Cal. Pet. 5s.....	99⅞	99⅝	99⅝	— ⅛
Cal. Pet. 5½s.....	102	102	102	+ ⅛
General Pet. 5s.....	101¾	101¾	101¾	+ ⅛
Humble Oil & Refg. 5s..	101⅝	101⅜	101½	— ⅛
Humble Oil & Refg. 5½s	102¼	101¾	102	0
Pan Amer. P & T 7s....	99½	99½	99½	0
Pan Amer. P & T 6s....	105	104½	105	0
Pan Amer. P & T 6s....	98	96	98	+3
Phillips Pet. 5¼s.....	96½	96	96	— ½
Pierce Oil deb. 8s.....	106¼	106	106	+ ⅛
Pure Oil 5½s.....	100⅛	99⅜	100	— ⅛
Pure Oil 5½s.....	91⅜	91¼	91½	+ ⅛
Richfield Oil Cal. 6s....	95⅝	97½	97½	+ ½
Shell Union Oil 5s.....	97	96⅜	96⅜	+ ⅛
Shell Union Oil 5s with war.	99¾	99	99½	0
Sinclair Con. Oil 7s.....	103¾	103¾	103⅜	0
Sinclair Con. Oil 6½s...	102½	102	102½	+1⅛
Sinclair Con. Oil 6s D...	100½	100⅜	100⅜	0
Sinclair Con. Crude 5½s	101	100½	100⅝	— ⅛
Sinclair Pipeline 5s.....	99	97½	98⅛	+ ⅜
Skelly Oil 5½s.....	96½	96	96½	+ ⅛
S. O. N. J. 5s.....	103⅞	103	103½	— ⅜
S. O. N. Y. 4½s.....	98	97⅝	97⅞	+ ⅜
Union Oil of Calif. 6s A..	107	107	107	— ⅞
Union Oil of Calif. 5s C..	100¼	100	100	0
Warner-Quinlan 6s.....	91	91	91	+1
White Eagle Oil 5½s war.	105½	105½	105½	0

New York Curb Bonds

Week ending June 6

	High	Low	Last	Change
Beacon Oil 6s '36.....	104	103¼	103¼	—3⅜
Cities Serv. 5s '66.....	84¾	84⅛	84⅛	— ½
Cities Serv. 5s '50.....	116⅜	107⅜	107⅜	—8⅞
Cities Serv. G. 5½s '42..	87⅜	87⅛	87½	— ⅜
Cities Serv. G. P. 6s '43..	93½	93½	93½	0
Cont. Oil 5½s '37.....	96¼	96	96¼	0
Empire O & R 5½s '42..	87	86¼	86½	+ ⅜
Gulf Oil 5s '37.....	101½	101	101½	+ ½
Gulf Oil 5s '47.....	101⅞	101½	101¾	+ ⅜
Indep. Oil 6s '39.....	105⅛	104¾	104¾	— ⅛
Sun Oil 5½s '39.....	102½	102	102	— ½
Union Oil Calif. 5s '45....	100⅛	99⅝	99⅞	— ⅛
Valvoline Oil 7s '37.....	102¾	102	102¾	0

Oil Dividends

	Amount	Payable	Stock of Record
Associated Oil q.....	50c	June 30	June 13
Eureka Pipe Line q.....	$1	Aug. 1	July 15
Mountain Producers q...	40c	July 1	June 14
National Refining pfd. q.	$2	July 1	June 15
Petroleum Corp. q.....	37½c	June 30	June 20
Richfield Oil pfd. q.....	43¾c	Aug. 1	July 5
Salt Creek Cons. q.....	10c	July 1	June 14
Tide Water Associated pfd q.....	$1.50	July 1	June 13
Tide Water Oil q.....	20c	June 30	June 13